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MOTOR AGE

A CHILTON
PUBLICATION

JULY 1949



In This Issue:

How the New Crosley Disc Brake Operates

R. D. Fumbledigit—an average car owner who needs new piston rings. BUT... rings baffle him—too complicated. Understands nothing mechanical about his car. Doesn't even know when his car needs new rings.



SO . . . These Hastings advertisements carefully explain: **"Oil-pumping in your car most often means your piston rings are worn and should be replaced."**

Consistent advertising to car owners sells preference for Hastings piston rings. And it also sells the *idea* of more frequent ring replacement... which means *more* repair jobs for you.

Hastings leads in advertising!

Over the past ten years, Hastings has led all piston ring makers in dollars invested in advertising to car, truck and tractor owners.

Piston Rings need replacing, too!

OIL-PUMPING in your car most often means your piston rings are worn and should be replaced... immediately. Delay not only wastes oil but leads to excessive, costly engine wear. Fortunately, piston rings are easily replaced. And it pays to replace them with Hastings Steel-Vent Piston Rings. They stop oil-pumping, check cylinder wear and restore performance. It's the best money you can spend on your car.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Ltd., Toronto

HASTINGS
Steel-Vent Piston Rings
"TOUGH... BUT OH SO GENTLE"
TOUGH on oil-pumping—GENTLE on cylinder walls

ASK YOUR REPAIRMAN FOR A FREE PERFORMANCE SPOT-CHECK

HASTINGS METHOD

HASTINGS METHOD

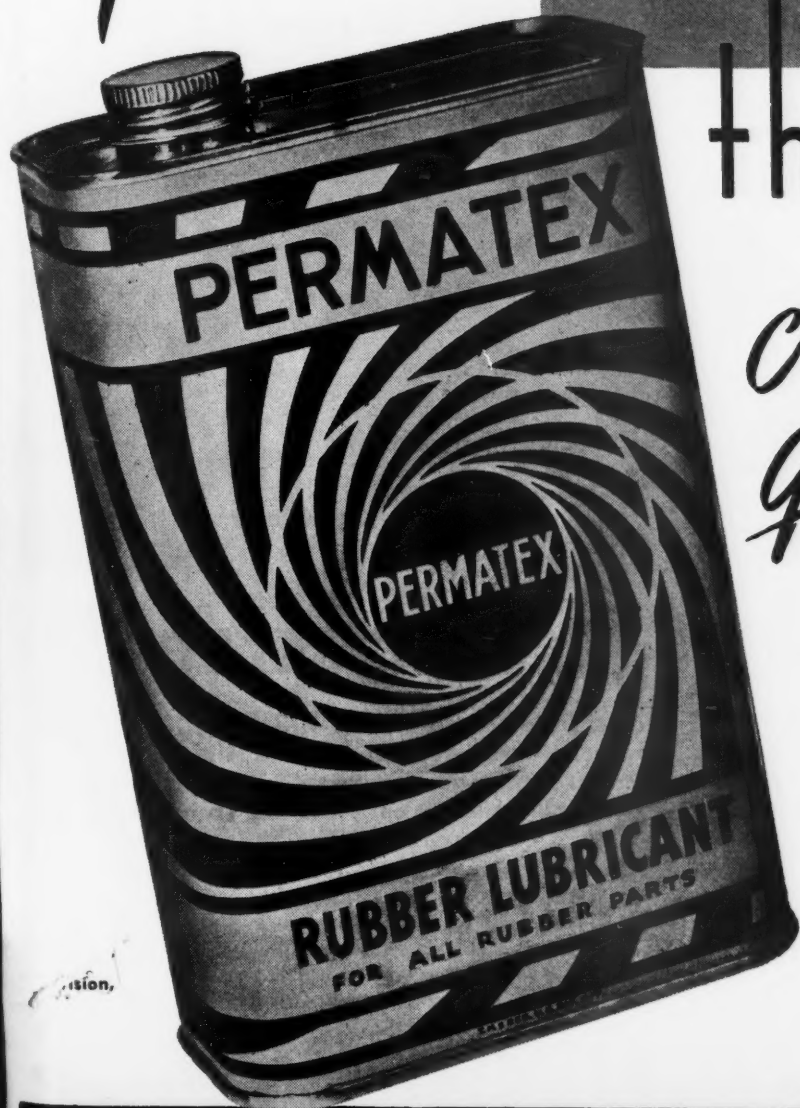
"TOUGH... BUT OH SO GENTLE"
TOUGH on oil-pumping—GENTLE on cylinder walls

*stop the
grunts*



that

*car owners
gripe about*

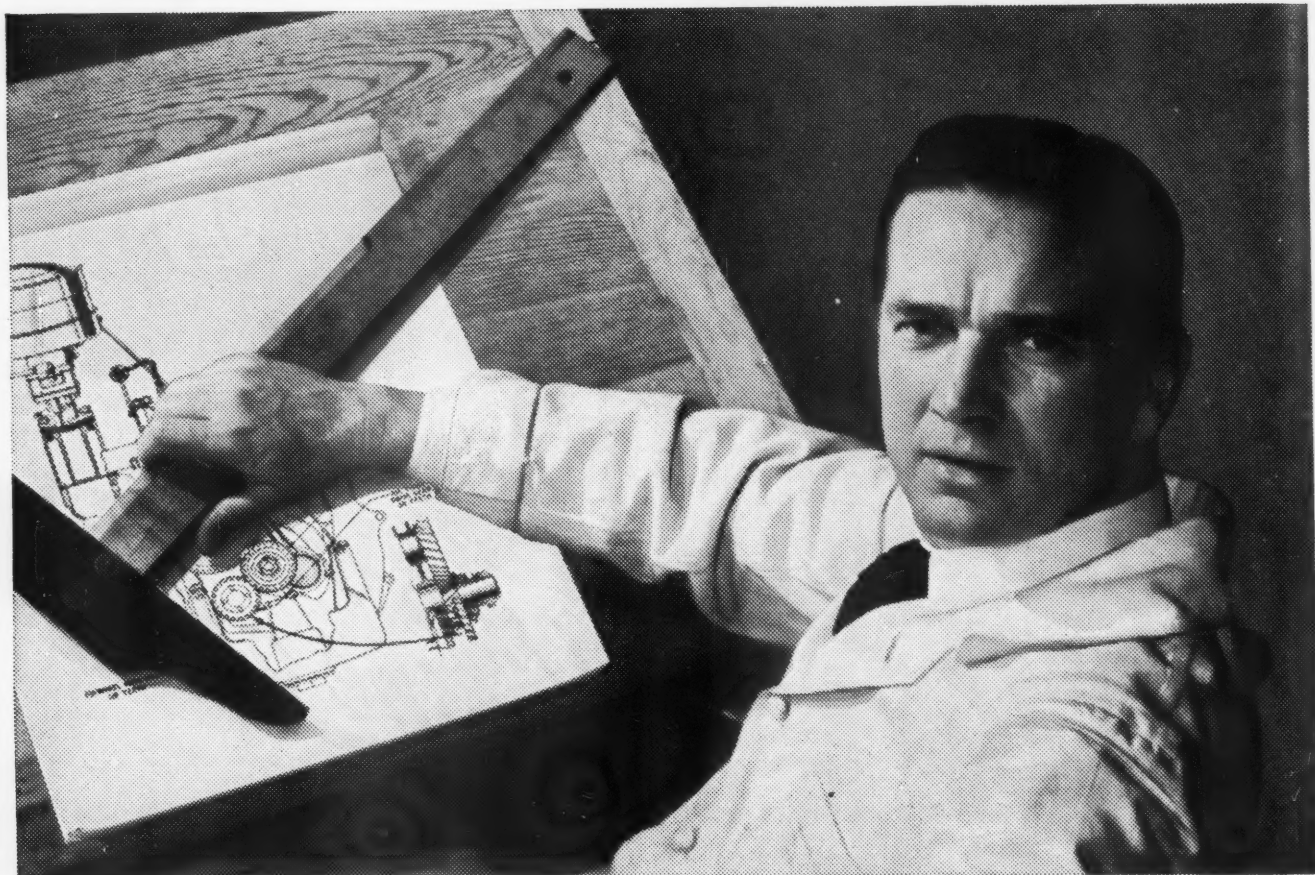


Permatex Rubber Lubricant silences the squeaks caused by dried out rubber parts. Puts new life into motor and body mountings, steering columns, stabilizers, shock absorbers and similar equipment. Unaffected by water.

Contains no petroleum oils or solvents that cause rubber to swell or rot.

PERMATEX COMPANY, INC., BROOKLYN 29, N. Y.

Sunoco Dynafuel is 4 to 1 choice of auto engineers!



Proved by Detroit gasoline survey!

IMPARTIAL SURVEY among 513 foremost automotive engineers in the Detroit area shows more of them use **SUNOCO DYNAFUEL** in their own cars than all other gasolines combined! Dynafuel was preferred 4 to 1 over the second choice gasoline!

UNIFORMLY HIGH ANTI-KNOCK ACTION in every cylinder—that's the high-test "performance promise" of Sunoco Dynafuel. It keeps cars running smoothly—keeps customers satisfied. And it saves motorists up to 2 cents a gallon over other high-test gasolines!



"High-test? Yes!
Premium Price? No!"



MOTOR AGE

WITH WHICH IS COMBINED AUTOMOBILE TRADE JOURNAL

Reg. U. S. Pat. Off.

for AUTOMOTIVE SERVICEMEN

Vol. LXVIII, No. 8

July, 1949

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of Audit Bureau of Circulations. Subscription Price: United States and Pos-
sessions, Latin-American Countries, \$3.00 per year; Canada and foreign
\$5.00 per year. Single copies, 40¢.

One of the Publications Owned by
CHILTON COMPANY (INC.)

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MOTOR AGE, Vol. LXVIII, No. 8. Published monthly by Chilton Co., Chestnut & 56th Sts., Phila. 39, Pa. Entered as Second-Class Matter December 27, 1935.
at the Post Office at Philadelphia, Pa.; Under the Act of Congress of March 3, 1879. In case of Non-Delivery Return Postage Guaranteed. Subscription price:
United States, Mexico, United States Possessions, and all Latin-American countries \$3.00 per year. Canadian and foreign \$5.00 per year; single copies, 40 cents.

Build better business with

You get fast turnover and steady, satisfied customers when you handle the automotive products people know and prefer—the products that are advertised in the Post.

In *your* community the Post reaches motorists *who mean business*—who spend the most to keep their cars in top-notch shape.

People have *confidence* in the Post. So they naturally favor the automotive products they have come to know and trust from the advertising pages of America's Most Influential Magazine. The best way to recommend a Post-advertised item is to say: "It's good—it's reliable—it's advertised in The Saturday Evening Post."

Pick up any automotive trade magazine and notice how often manufacturers feature the fact that their products are supported by advertisements in The Saturday Evening Post.

AUTOMOBILE AND

A. C. Spark Plug Division,
General Motors Corporation
Allis-Chalmers Mfg. Company
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Casite Corp., The
Caterpillar Tractor Co.
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General Motors Corporation
Chicago Show Printing Co.
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Chrysler Div., Chrysler Corp.
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Crosley Motors, Inc.
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Dayton Rubber Co., The
Delco Products, Div. of
General Motors Corporation
Delco-Remy Division,
General Motors Corporation
De Soto Division, Chrysler Corp.
DeVilbiss Company, The
Dean Manufacturing Corp.
Dodge Car Division, Chrysler Corp.
Dodge Truck Division, Chrysler Corp.
Dow Chemical Company, The
du Pont de Nemours &
Company, Incorporated, E. I.

The fastest selling lines

THE SATURDAY EVENING
POST

advertised lines

AUTOMOTIVE AFTERMARKET ADVERTISERS IN THE SATURDAY EVENING POST

aton Mfg. Co.
adison, Inc., Thomas A.,
Automotive Div.
Electric Auto-Lite Company, The
Electric Storage Battery Co., The
Phyl Corporation
ederal-Mogul Service,
Division of Federal-Mogul
Corp.
Prestone Tire & Rubber Co., The
Fisher Body Division,
General Motors Corporation
Ford Motor Company
Ford Motor Company,
Import Sales Section
Gram Corporation
Huehauf Trailer Company
Hulton Company, The
Gabriel Company, The
General Electric Company
General Motors Corporation
General Tire & Rubber Co., The
MCM Truck & Coach Division,
General Motors Corporation
Goodrich Company, The B. F.
Goodyear Tire & Rubber Co., The
Grey-Rock Div. of
Raybestos-Manhattan, Inc.
Grizzly Manufacturing Company
Guide Lamp Division,
General Motors Corporation
Gulf Oil Corporation
Hastings Manufacturing Co.
Hest Division, DeMert &
Dougherty, Inc.
Herbrand Division, The
Bingham-Herbrand Corp.
Hudson Motor Car Co.
Hull Mfg. Co.
Indian Motorcycle Co.,
Division of Rogers Diesel
and Aircraft Corp.
Ingersoll-Rand
International Harvester Co.
International Mfg. Co.
Kaiser-Frazer Corporation
Kelly-Springfield Tire Co., The
Lendall Refining Company
Loppers Company, Inc.,
American Hammered Piston
Ring Div.
Lincoln Division, Ford Motor
Company
Littelfuse, Inc.
Macmillan Petroleum Corp.
Manning, Maxwell & Moore, Inc.
McQuay-Norris Mfg. Co.

Mercury Division, Ford Motor
Company
Minnesota Mining & Mfg. Co.
Monroe Auto Equipment Co.
Moog Industries, Inc.
Motorola, Incorporated
"M" System Manufacturing Co.
Muskegon Piston Ring Co.
Nash Motors, Division of
Nash-Kelvinator Corporation
National Automotive Parts Ass'n
National Carbon Company, Inc.,
Unit of Union Carbide and
Carbon Corporation
National Plastic Products Co., The
New Departure Division,
General Motors Corporation
Octa-Gane Company
Oldsmobile Division,
General Motors Corporation
Oliver Corporation, The
Owens-Corning Fiberglas Corp.
Packard Motor Car Co.
Palace Corporation
Parker Rust Proof Company
Pennsylvania Grade Crude
Oil Association
Pennsylvania Rubber Company
Pennzoil Company, The
Perfect Circle Corporation
Petersen Mfg. Co.
Phillips Petroleum Company
Plymouth Division, Chrysler
Corporation
Pontiac Motor Division,
General Motors Corporation
Proto Tools
Purolator Products, Inc.
Pyrene Manufacturing Company
Pyroil Company
Quaker State Oil Refining Corp.
Ramsey Corporation
Raybestos Division
of Raybestos-Manhattan, Inc.
Ray-O-Vac Company
Reading Batteries, Inc.
Robbins Co., Jim
Schrader's Son, A., (Div. of
Scovill Manufacturing Co.)
Schult Corporation
Sealed Power Corporation
Seiberling Rubber Company
Shakeproof, Inc., Division of
Illinois Tool Works
Shaler Company, The
Shell Oil Company, Inc.

Sheppard, Inc., R. H.
Simoniz Company, The
Simplex Mfg. Corporation
Sinclair Refining Company
Skillsaw, Inc.
Socony-Vacuum Oil
Company, Inc.
South Wind Division,
Stewart-Warner Corp.
Standard Oil Co. of California
Sterling Tool Products Co.
Stewart-Warner Corporation
Studebaker Corporation, The
Susquehanna Mills, Inc.
Texas Company, The
Tide Water Associated Oil Co.
Timken-Detroit Axle Co., The
Timken Roller Bearing Co., The
Trailer Coach Manufacturers'
Association
Trico Products Corporation
Truckstell Co., The
Union Oil Company of Calif.
United Motors Service,
Div. of General Motors Corp.
United States Rubber Company
U. S. Industrial Chemicals, Inc.
Vagabond Coach Mfg. Co.
Van Dorn Electric Tool Co., The,
Div. of The Black & Decker
Mfg. Co.
Wagner Electric Corporation
Walker Manufacturing Company
of Wisconsin
Warner-Patterson Company
Weaver Manufacturing Company
White Motor Company, The
Willard Storage Battery Co.
Willys-Overland Motors, Inc.
Winchester Repeating Arms Co.,
Div. of Olin Industries, Inc.
Wolf's Head Oil Refining Co., Inc.
Wooster Rubber Co., The
Wype Corp.
Yankee Metal Products Corp.
Young Spring & Wire Corp., L. A.
Zecol, Inc.

NOTE: The above listing includes manufacturers of automotive vehicles and automotive products whose advertising has appeared in issues of the Post during the six-month period ending June 11, 1949.

THE SATURDAY EVENING
POST

advertised lines

MOST EFFECTIVE CARBURETOR PROTECTION EVER DEVELOPED!

HERE'S WHY AIRTEX FUEL FILTERS ARE BETTER!

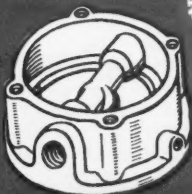
Special vented sealed cover



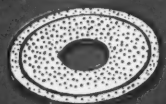
Patented spring cushioned diaphragm is the secret of Airtex filter superiority



Special alloy non-warp body casting



Airtex porous metal filter disc removes particles as small as .001"



Re-usable cork and synthetic rubber gasket insures perfect seal



Larger capacity for sediment which requires less frequent cleaning



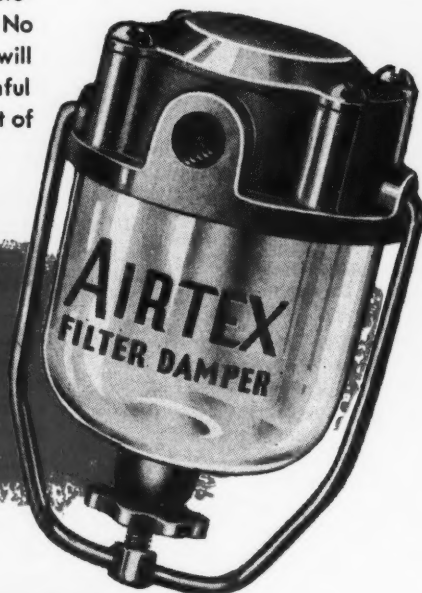
AIRTEX *Anti-Pulsation* FUEL FILTER

with the **SHOCK ABSORBER DIAPHRAGM**

- ✓ 50,000 Mile Diaphragm cushions fuel pump pulsations — protects carburetor needle valve and float lever against wear—eliminates frequent carburetor adjustments
- ✓ Helps conserve fuel by maintaining constant uniform pressure at carburetor which prevents high fuel level
- ✓ Minimizes vapor lock — improves cold weather starting — smooths engine operation at idle and low speeds
- ✓ Automatic cleaning action of filter disc by Spring-Cushioned Diaphragm eliminates restriction and repeated replacement of disc
- ✓ Airtex porous metal filter element won't chip or crumble. No diamond-hard filter particles will cause trouble. Keeps all harmful abrasives, dirt, lint and water out of carburetor

Order From Your Jobber

Manufactured & Guaranteed
by the Makers of
AIRTEX
FUEL PUMPS
equipped with the
50,000 Mile Diaphragm



GET THE COMPLETE PROFIT STORY

Ask your jobber about the sales-building counter display, folders, signs, posters and other advertising available.

AIRTEX
AUTOMOTIVE DIVISION
World's Largest Independent Fuel Pump Manufacturer

FAIRFIELD, ILL.

HOW TO BE OUT IN FRONT

Here's why you'll be
OUT IN FRONT with
DELCO BATTERIES!



The "OUT-IN-FRONT" battery program consists of the following sales-getters:

Signs—Banners—Posters—Streamers
Charts—Direct Mail—Handouts—
Newspaper Mats—National Advertising—
Battery Service Kit—Electro-
Check—Trikl-Charge Units—Steel
Merchandise Stands.

IN THE BATTERY BUSINESS!

**Delco has the program to
meet today's conditions**

Here's your chance to line up with the leader, and to participate in the greatest potential replacement market in the industry!

Nearly one-half of the cars on the road today are Delco-equipped and represent a vast, pre-sold market when replacement time comes along! The "OUT-IN-FRONT" Delco Battery program now offered dealers is designed to take full advantage of the fact.

Under United Motors, and with the help of the "OUT-IN-FRONT" program, you can get your full share of this business—plus a large slice of the truck, bus and tractor battery business as well. Contact your United Motors distributor, or write directly to United Motors Service, General Motors Building, Detroit 2, Michigan.

Delco-Remy

DIVISION, GENERAL MOTORS CORPORATION
ANDERSON, INDIANA

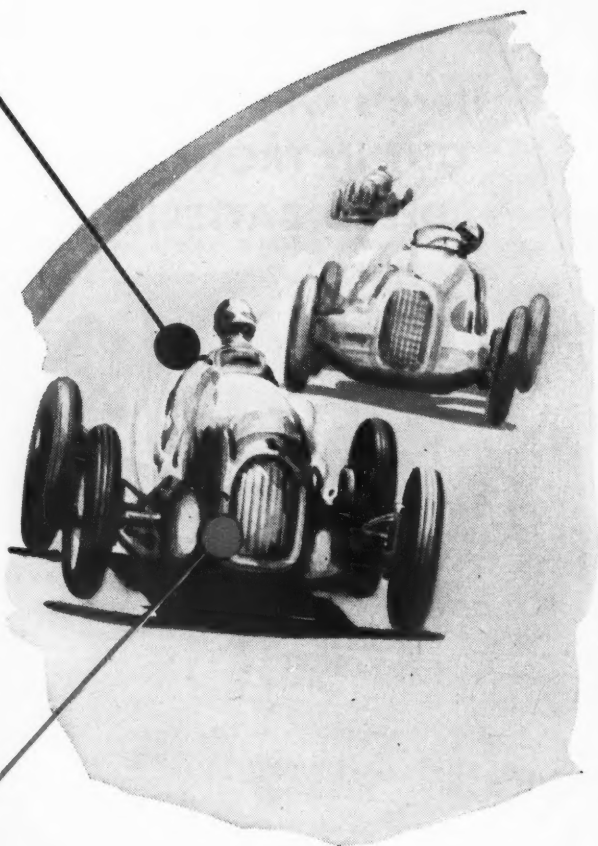


DELCO BATTERIES—A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

WHEREVER WHEELS TURN OR PROPELLERS SPIN

CRESCENT RIDES WITH THE WINNER AT INDIANAPOLIS

- Race drivers in the Indianapolis "500" guard, as far as humanly possible, against a failure of any part that may cost them the race. Months and months—yes, often years of experimenting—gruelling tests—exhaustive experiments—expenditures of large sums of money—all these go into the preparations for the "one big chance."
- That's why we're proud that Crescent-Wiry Joe rode with Bill Holland, the record-breaking winner of this year's "500". . . proud that the cars finishing first, third and sixth were equipped with Crescent-Wiry Joe Wiring.
- Wherever you find leaders, *wherever you find people who demand the very best*, you will find Crescent-Wiry Joe Wiring on their cars. For years, Crescent has specialized in manufacturing a superior line of automotive ignition cable, starting cable, lighting cable, and battery cables. The next time you specify wiring, *specify Crescent-Wiry Joe Wiring.*



THE
CRESCENT
COMPANY, INC.
PAWTUCKET, R. I.



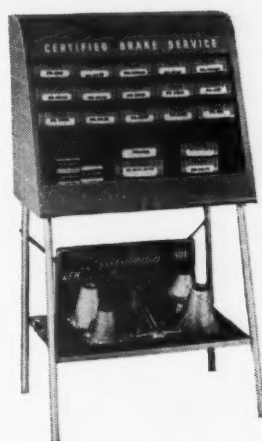
✓ *Check the wire on every job!*

WHEN NEXT IN OUR NEIGHBORHOOD, DROP IN.
SEE HOW CRESCENT-WIRY JOE AUTOMOTIVE
CABLES ARE MADE FROM COPPER TO FINISHED
PRODUCT IN ONE PLANT UNDER ONE ROOF



Deals designed to help you sell more *Raybestos* brake lining

Bonded or Riveted... genuine Raybestos Sets are now available in these attention-getting display racks. Either one will put you in the Brake Service business with Raybestos...America's biggest selling brake lining...and entitle you to full factory cooperation. They tie you in with our national advertising, and mark you as the man to come to for dependable brake performance. See your Raybestos jobber today. Get one of these new sales accelerators. Be able to show your customers the actual Raybestos Sets you put on their cars. And get a supply of those business-building Raybestos Brake Certificates, too.



20-Set Brake Shoe Deal

Deal contains 20 four-shoe sets of lined shoes, giving over 90 percent coverage of the popular passenger car market. Deal comes complete with display rack, cardboard display and specification card. Your choice of PG, Ray-BOND, Wire Molded, or Wire Molded Bonded Sets.

Complete Brake Service Department

Includes 19 PG or Ray-BOND Sets, 1 No. 865 riveter, 1 set of wheel pullers and 3,000 rivets. Deal comes complete with a handsome cabinet and specification chart. Also available with Wire Molded Sets.



Raybestos



RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Fan Belts • Radiator Hose • Packings • Mechanical Rubber Products • Rubber Covered Equipment • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls

AMERICA'S BIGGEST SELLING BRAKE LINING

The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn.

How the "Biceps Brothers" mixed Brains with Brawn

Reading time: 1 minute, 58 seconds

Luke and Larry were lads of only 14 and 11 years respectively, when they started in the automobile business. For a single dollar bill they took title to a superannuated sedan. With their Dad's help, they dismantled it, replaced a few parts, gave it a fresh coat of paint and sold it for \$25.00.

From that moment, during every spare hour through their high school days, they tinkered with used cars . . . buying, repairing, selling them. A vacant lot served as their garage, and when it turned cold they "shut



down" till spring. Following Larry's graduation and a busy summer and fall in their business, the idea of winter idleness became irksome to both of them. "Let's have a look at America," Luke suggested. Larry thought a trip west would be swell. So off they went to California.

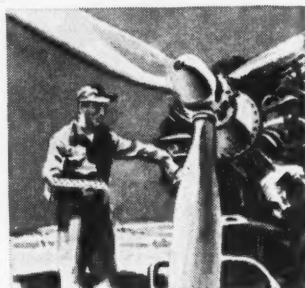
Fishing off Catalina one bright day, they were sighted by a movie director and his cast. Two amazing



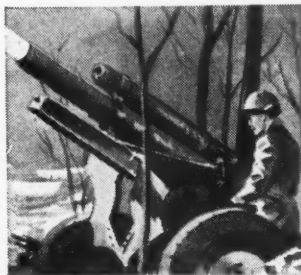
physical specimens such as these . . . both 6 ft. 3 inches of bone and bulging muscle . . . were a real "find" for bit parts. The director said, "How about joining up?" A deal was made for more money than they'd ever seen, and Luke and Larry became known as "The Biceps Brothers" to the cast.



When spring came, they hustled home with their new found wealth and opened a moving and trucking business. But the lure of repairing vehicles and selling them was too strong. With the money they'd banked, Luke and Larry bought materials and set to work building a service garage with their own hands. As business thrived they added a showroom and began selling a line of new trucks.



Then came the war and their first separation. Luke served in the Field Artillery; Larry was off to North



Africa as an aircraft engineer. When the shooting stopped, they hurried home to begin work on a new steel and concrete building. The next step . . . the BIG one . . . was to talk with the Dodge folks in Detroit, for experience had shown them what make of cars and trucks they preferred to sell and service.

"We had a long visit with the factory executives," Luke says, "and then members of their field staff came to see our new building. I guess they also checked up on our experience and what the home town people thought of us. Not long after that we got the 'green light' and . . . well, the way business is going we may soon have to enlarge our Dodge and Plymouth headquarters."

Write for our free booklet containing a number of these stories of accomplishments by enterprising men. Chrysler Corporation, 341 Massachusetts Ave., Highland Park 3, Mich.



Chrysler Corporation

PLYMOUTH • DODGE • DESOTO • CHRYSLER • DODGE "Job-Rated" TRUCKS



*If your customers **CRAB**
about performance . . .*



*set the timing
to take full advantage . . .*



*of the high antiknock quality of
"ETHYL" Gasoline . . .*



*and keep him happy
with you and your service.*

ETHYL CORPORATION, New York 17, N.Y.

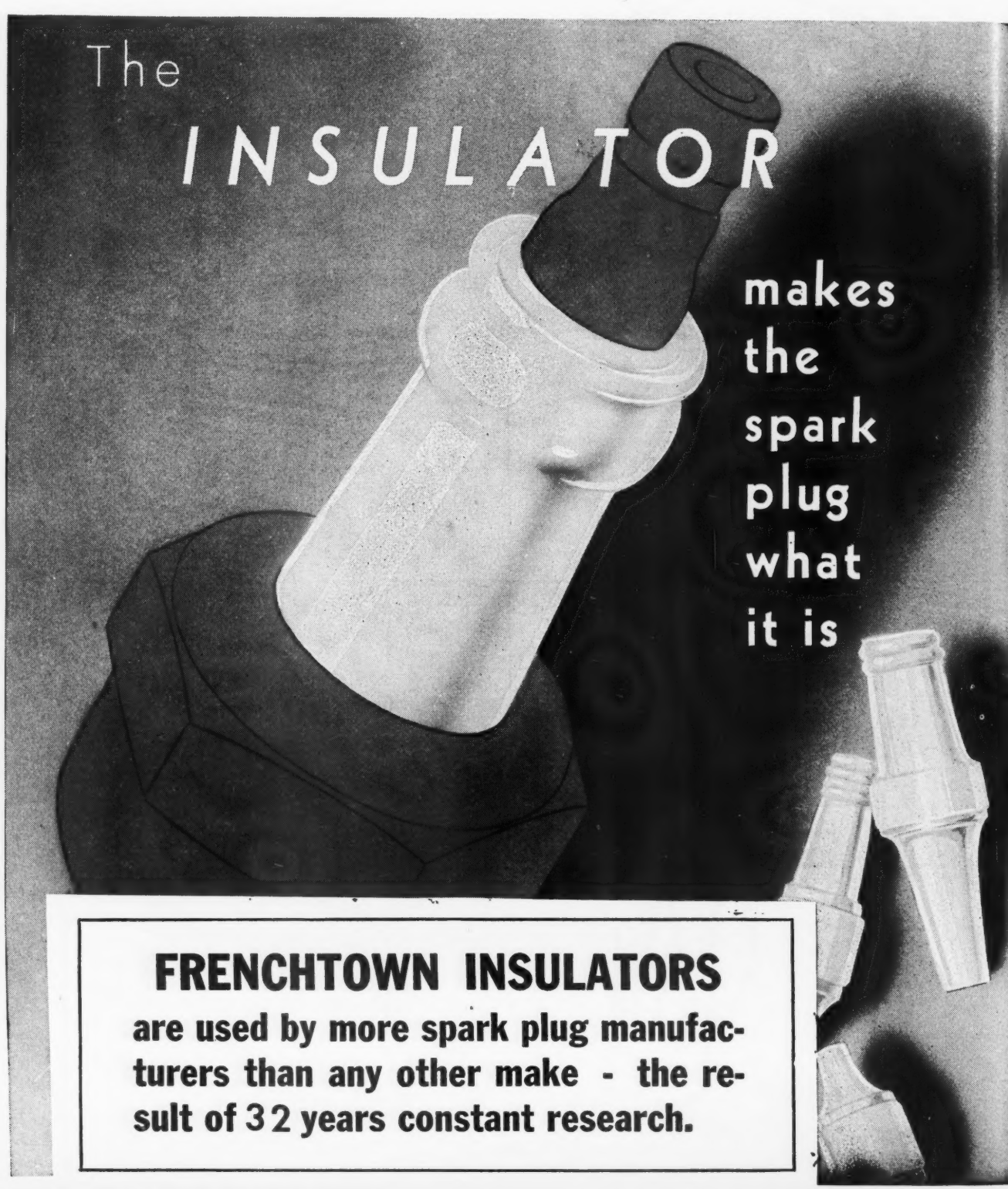
Products sold under the "ETHYL" trade-mark: Antiknock Compounds . . . Salt Cake . . . Ethylene Dichloride . . . Sodium Metallic . . . Chlorine (liquid) . . . Oil Soluble Dye

FRENCHTOWN HELPS BLUE CROWN

The

INSULATOR

makes
the
spark
plug
what
it is



FRENCHTOWN INSULATORS
are used by more spark plug manufacturers than any other make - the result of 32 years constant research.

FRENCHTOWN PORCELAIN CO.

Sales Office, 8 Muirhead Ave., Trenton, N. J.

SPARK PLUGS SET NEW RECORD

FRENCHTOWN INSULATORS

helped win **FIRST PLACE**
in *Indianapolis Classic*
for third straight year,
as well as third
place this
season.



WINNER

**BILL
HOLLAND**

Photos courtesy of
Tower Photographers
Indianapolis 18, Ind.

CLASS OF SERVICE		RECEIVED		SYMBOLS	
<small>This is a full Telegram or Cable gram unless its de- ferred character is in- dicated by a suitable symbol above or pre- ceding the address.</small>		WESTERN UNION <small>JOSEPH L. Egan PRESIDENT</small>		<small>DL = Day Letter NL = Night Letter LC = Deferred Cable MLT = Cable 11 Night Letter Day Radiogram</small>	
<small>The filing time shown in this class... and day letters in STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination.</small>					
.PA334 P.1DA138 LONG 85 DL FRENCHTOWN PORCELAIN CO= TRENTON NJER=		1 EXTRA=INDIANAPOLIS IND 31 1142A=			
BLUE CROWN SPARK PLUG SPECIALS WIN 1ST AND 3RD AT INDIANAPOLIS 500 MILE CLASSIC. ESTABLISHING AN ALL TIME RECORD OF 121.377 M.P.H. NEARLY REPEATING 1ST AND 2ND PLACE WINS OF 1947 AND 1948 CONGRATULATIONS AGAIN TO THE FRENCHTOWN PORCELAIN COMPANY FOR PRODUCING A SPARK PLUG INSULATOR OF SUCH OUTSTANDING QUALITY. IT HAS BEEN A GREAT ASSISTANCE IN MANUFACTURING BLUE CROWN SPARK PLUGS TO STAND UP UNDER THE TERRIFIC PUNISHMENT OF A 500 MILE GRIND AND TO MAKE SPEEDWAY HISTORY. CONGRATULATIONS AGAIN= BLUE CROWN SPARK PLUG CO P D JACKSON PRES=					

FRENCHTOWN PORCELAIN CO.

Factory, Frenchtown, N. J.



BREEZE THRU

YOUR WORK WITH **BANTAM*** *Porto-Power!*

YOU need *Bantam* Porto-Power to pitch out body jobs at a fast clip! It gets in where big Porto-Power can't go. And you swing along faster, easier and more profitably on a great range of work. Sure, body construction demands big 10-ton Porto-Power for aligning major members. But 90% of the panel work is licked by Bantam's 2-ton hydraulic unit and attachments. Low-cost, lightweight, compact Bantam is so essential that profit-conscious shops are equipping each mechanic with a personal Bantam†. Order from your Blackhawk Jobber and watch body profits step up!

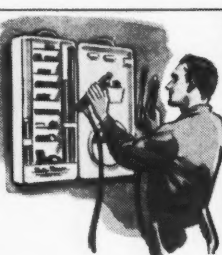
A Product of
BLACKHAWK MFG. CO.
Dept. P-679, Milwaukee 1, Wis.

†That's why we furnish a free nameplate for the new Bantam cabinet.

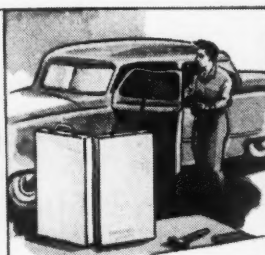
KEEP BANTAM HANDY THROUGHOUT THE SHOP...



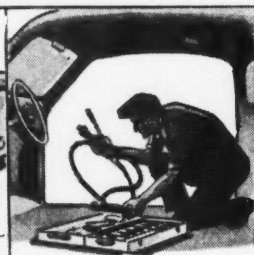
...next to the job



...on the wall



...on the work bench



...inside car



...or even on wheels

**Bantam Porto-Power is made Exclusively by*

BLACKHAWK®

HAND JACKS • SERVICE JACKS • WRENCHES • PORTO-POWER • RECK-RACK

Introducing the

100% plastic
insulated
battery cable



meets the acid test

Blue Streak, always striving to bring you the best in electrical replacements now introduces the up-to-the-minute development in battery cables with through and through plastic insulation—EKTRON. It's acid resistant! The tough plastic covering doesn't give acid or acid fumes a chance to get started even in the most vulnerable spot—at the battery terminal.

Ektron resists not only acid but oil, gas and abrasion. Under tough operating conditions, under strain of heat and acid, under extreme weather conditions, EKTRON has proved that it can take it.

Ektron is safer—it's flame resistant! Yes sir, for performance, durability and long life, thanks to its newly developed plastic insulation, there's no better battery cable made today than EKTRON.

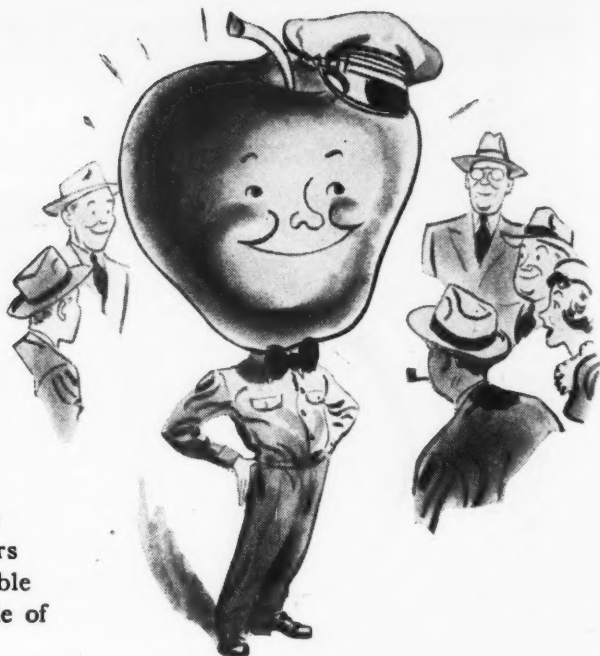
better your business...

buy Blue Streak Battery Cable!

STANDARD MOTOR PRODUCTS, INC., LONG ISLAND CITY 1, NEW YORK

How to be the apple of a customer's eye

CUSTOMERS are sure to pick you as the apple of their eye—if you let them know that you're using the very finest in replacement parts. The quickest, easiest way is to show them the trade-mark "Timken®" on the tapered roller bearings you install. Everyone knows that "Timken" means "best" where bearings are concerned. Years of trouble-free service have convinced your customers that there are no finer, more dependable bearings. So if you want to be the apple of every customer's eye . . .



... Just tell 'em it's "TIMKEN"®



No matter how hard the service may be, Timken bearings will stand up under it—and normally outlast the vehicle itself. The tapered roller design takes any combination of radial and thrust loads, keeps parts in rigid alignment. Incredibly smooth surface finish reduces friction to a minimum.

Timken quality is rigidly controlled from original melt to final bearing inspection. And Timken makes its own alloy steel . . . the finest ever developed for tapered roller bearings.

To be sure of smiles on customers' faces, be sure the "Timken" trade-mark is on every tapered roller bearing you install. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



TIMKEN
TRADE MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 

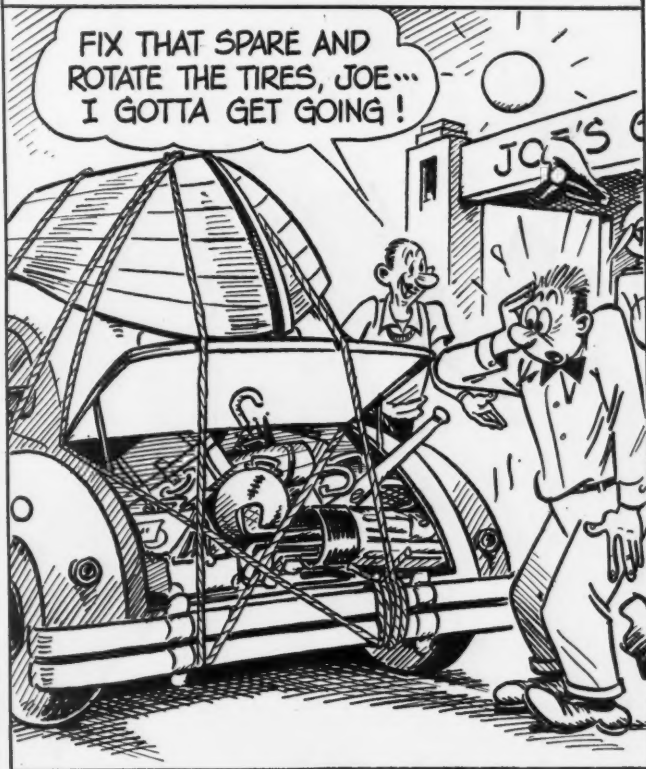
"THEY NEVER MISS ...!"

by Gum

FOR MONTHS, MR. MANANA HAD A SPARE THAT NEEDED FIXING... BUT—



TODAY, HE'S STARTED ON HIS VACATION... THE CAR LOADED TO THE GUNNELS... NOW LISTEN...



Copyright 1949, Prest-O-Lite Battery Company, Inc.

Don't delay-Check Prest-o-lite today

COAST TO COAST, the Prest-O-Lite Profit Plan is cleaning up for dealers, boosting volume and earnings all along the line. Find out how the sensational Prest-O-Lite Hi-Level Battery helps win friends, build sales and profits. See the dramatic, attention-packed advertisements that go to 18,000,000 homes. Then add the famous Prest-O-Lite point-of-sale helps. It's the greatest campaign in Prest-O-Lite history. Talk to your jobber's salesman, or write to

PREST-O-LITE BATTERY COMPANY, INC.
Toledo 1 Ohio

prest-o-lite
hi-level battery



... needs water only 3 times a year!*

*In normal car use.

BILL'S SERVICE

the



Here is a typical month's advertising on AC's Profit Boosters, showing how AC constantly drives two kinds of profits in to you . . . sales profits and service profits.

You don't have to handle all AC products, but you're money ahead if you do. Each is a standard replacement item, which requires either a new element or a whole new unit from time to time. Each is of highest AC quality, to heighten your reputation for good service. Each is priced to yield you a generous profit margin.

You can scarcely lift the hood of a car or truck that is not equipped with one or more AC quality products. That proves what engineers and vehicle builders think of them . . . and proves the ready acceptance your customers will give them.

If it's made by AC, it's highest quality . . . and highly profitable to sell and service.

AC SPARK PLUG DIVISION

• GENERAL MOTORS CORPORATION



AC line of Profit Boosters

IS HEAVILY ADVERTISED

harmony...

© Harmony under the hood. Today's AC Spark Plugs, with **Patented Cordex Insulators**, are always in tune with your engine... whether it's cold or hot... loading or under heavy load.

They surpass all previous spark plugs in their ability to fire steadily under a wider range of operating conditions.

They remain efficient through substantially longer life.

If you want your engine to sing a sweet song of smoothness and power, get a set of new AC's today.

AC SPARK PLUGS

AC FILMENT IN YOUR OIL FILTER WILL

Dirt-Proof

ENGINE OIL Put a new AC Quality Element in your oil filter, and you drive with "Dirt-Proof" engine oil. You use less oil and less gas. More power, which stops the rapid engine wear, ring clogging, and valve gumming.

If you have no oil filter, get a complete AC Quality Oil Filter—and keep your oil "Dirt-Proof." You'll get expert attention from your AC Service Dealer.

AC OIL FILTERS

Your "AC Service" Sign is an important element of all AC national advertising. That Sign appears in Saturday Evening Post, Collier's, Country Gentleman, Copper's Farmer, Progressive Farmer, and similar outstanding magazines. It's your tie-up to a tremendous advertising program.

If you don't have this famous Sign, get in touch with your AC supplier.

Mind Giving Me a Push?

THE AC FUEL PUMP SYSTEM KEEPS YOU OUT OF TROUBLE

Most of the fuel troubles in modern cars and motor trucks, that AC Fuel Pump System solves. The AC Fuel Pump System is the only one that guarantees the proper maintenance of the fuel system.

The AC Fuel Pump System is the only one that guarantees the proper maintenance of the fuel system.

The AC Fuel Pump System is the only one that guarantees the proper maintenance of the fuel system.

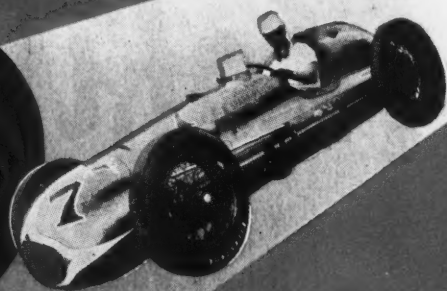
AC FUEL PUMP SYSTEM



Be a national advertiser
... display this sign

**BILL HOLLAND
MAKES IT . . .**

3



IN A ROW FOR BURD AT INDIANAPOLIS

• 1947 . . . 1948 . . . 1949 . . . for the third straight year, a Burd Piston Ring-equipped car whipped the field in the world-famous 500-Mile Classic. This time Bill Holland was at the wheel of the Lou Moore winner, rolling up a new all-time race record of 121.377 m.p.h. and finishing an easy five miles ahead of the pack. Burd Piston Rings have dominated at Indianapolis with amazing con-

sistency . . . have posted six victories in the last nine races. When the going was toughest, Burd Piston Rings supplied that extra power . . . that accurate oil and gas control needed to win. Burd's unbeatable record in this cruelest of all automotive tests proves again what leading mechanics know . . . you can't beat Burd Piston Rings for performance in ANY engine.

BURD PISTON RING COMPANY

• **Rockford, Illinois**



BURD
AUTOMOTIVE
PRODUCTS



PISTON RINGS



VALVE PACKING



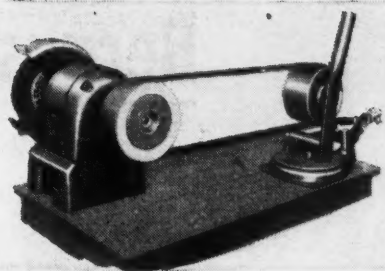
VALVE GUIDES



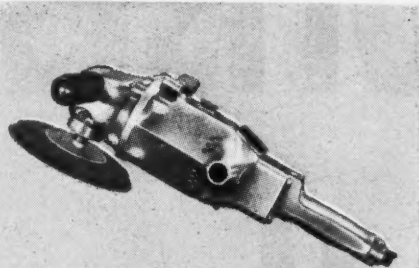
HOT WATER CAR HEATERS

Specify

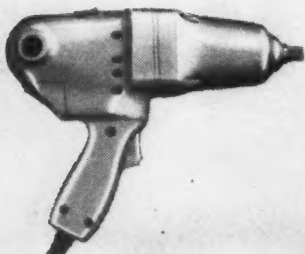
"Van Dorn"



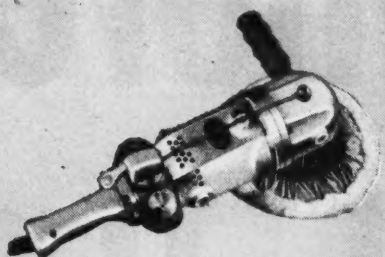
BENCH GRINDERS: Four models from 6" to 10" wheel diameters. **BACK STAND IDLER** attachment, with abrasive belt, does faster, cooler grinding.



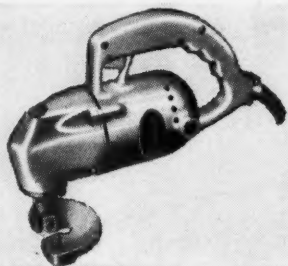
PORTABLE SANDERS: Amazingly versatile. Drive abrasive discs, saucer grinding wheels, wire wheel brushes. Three models to pick from, in 7" and 9" disc diameters.



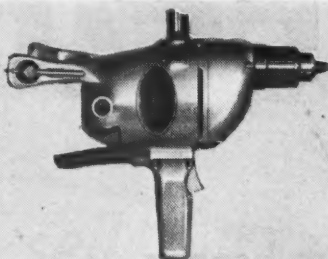
ELECTRIC IMPACT WRENCH runs and removes nuts, bolts, etc., to $\frac{3}{4}$ " thread size. **SCREW DRIVERS:** 25 perfectly-balanced models for a wide range of screw driving and nut running.



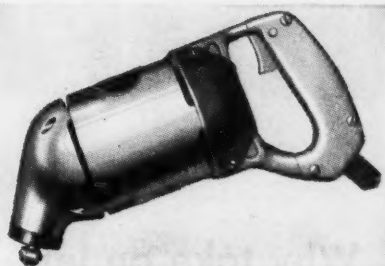
ELECTRIC POLISHERS: Remove dirt and grime; polish and seal car, truck and bus surfaces; in one operation by VITRI-GLAZE Method. Automatic and Standard models.



ELECTRIC SHEARS: For fast, accurate cutting of ferrous and non-ferrous sheet, galvanized, stainless, etc. Cutting action always visible. 12, 16 and 18 gage.



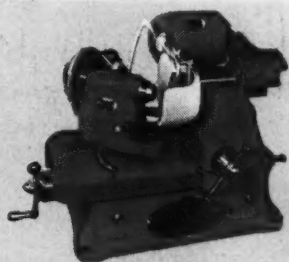
ELECTRIC DRILLS: 25 models with capacities from $\frac{1}{8}$ " to $1\frac{1}{4}$ " in steel. Drive twist drills, wood augers, Hole Saws, carbon removing brushes, etc.



VALVE SEAT GRINDERS: "VIBRO-CENTRIC"® action quickly puts a mirror-finish on any valve seat, hard or soft. Three models.

Your first choice for cost-cutting . . . in Engine, Body and Fender Work!

Drilling, sanding, grinding, polishing, valve reconditioning—whatever the job you're doing, there's a powerful Van Dorn Electric Tool to help you do it better, faster, at lower cost! The Tools shown here are just samples of the diversified, versatile Van Dorn Line—over 100 cost-cutting Electric Tools in all! Every one is built of top-quality materials, with modern design and fine workmanship. Your nearby Van Dorn Distributor can give you positive proof of their top-notch performance—show you how shops like yours have used Van Dorn Tools to slash costs all down the line! Call him today for sound, experienced help in all your tooling problems!



VALVE REFACERS: Grind factory-accurate angle on valve faces. Also put absolutely smooth surface on stems and tappets.

WRITE TODAY for our illustrated, fact-packed catalog. See where Van Dorn Electric Tools can save you money. Address:
THE VAN DORN ELECTRIC TOOL CO.,
727 Joppa Road, Towson 4, Md.

**FOR POWER
SPECIFY**

"Van Dorn"

(DIV. OF BLACK & DECKER MFG. CO.)

PORTABLE ELECTRIC TOOLS

Because it's the GREATEST VALUE

more motorists anti-freeze than

**Why take on less-known brands
when you can have this selling power? . . .**

1. Saves money. Protection costs less with "Zerone." It's not only low in price, but it's more efficient. Three quarts of "Zerone" do the work of four quarts of most other types of anti-freeze.

2. Four out of five cars can use it. 70% to 80% of all cars on the road have low-opening thermostats and operate at temperatures well below the boiling point of "Zerone" solutions. You can safely recommend "Zerone" for protection in such cars down to -30° F.

3. No evaporation problem. "Zerone" does not readily separate from water in an automobile cooling system. Losses, if any, come from the usual mechanical causes—leaky gaskets and pumps, or other defects.

4. Special chemical inhibitor. The patented *chemical* inhibitor in "Zerone" is a development of Du Pont research chemists. Hundreds of practical road tests and service in millions of cars prove it gives longer-lasting protection against acid, rust, and corrosion. It won't attack rubber hose or clog cooling systems.

5. No objectionable odor. This "Zerone" feature has helped make it popular ever since it was introduced 16 years ago.

6. Made by Du Pont. The Du Pont trade-mark is a symbol of quality to thousands of car-owners. They have confidence in, and readily accept, products bearing this name.

in the anti-freeze market...

buy "ZERONE"

REG. U. S. PAT. OFF.

any other brand

When you sell
Du Pont "ZERONE,"
you sell VALUE!



BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



SIGNS OF SUCCESS

FIRST!

The checkered flag is the sign of success in auto racing. And the big, red, white and green Wolf's Head sign is the sign of successful dealers—for Wolf's Head means even more than the "finest of the fine" motor oil and lubes . . . it means more customers, satisfied customers—the sign of business success! Wolf's Head Oil Refining Co., Inc., Oil City, Pa., New York 10, N. Y.

Wolf's Head Motor Oil is refined three steps further than ordinary motor oils.

- 1 EXPERTLY CONTROLLED DEWAXING**—Keeps Wolf's Head free-flowing and removes non-lubricating wax components.
- 2 DOUBLE DISTILLING**—Makes Wolf's Head richer, more heat-resistant.
- 3 TRIPLE FILTERING**—Removes all free carbon and other troublesome impurities.

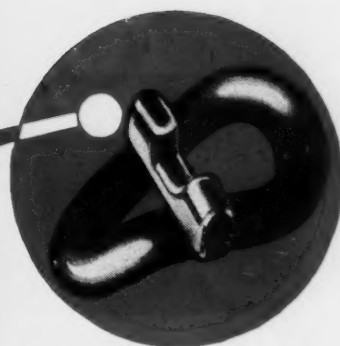
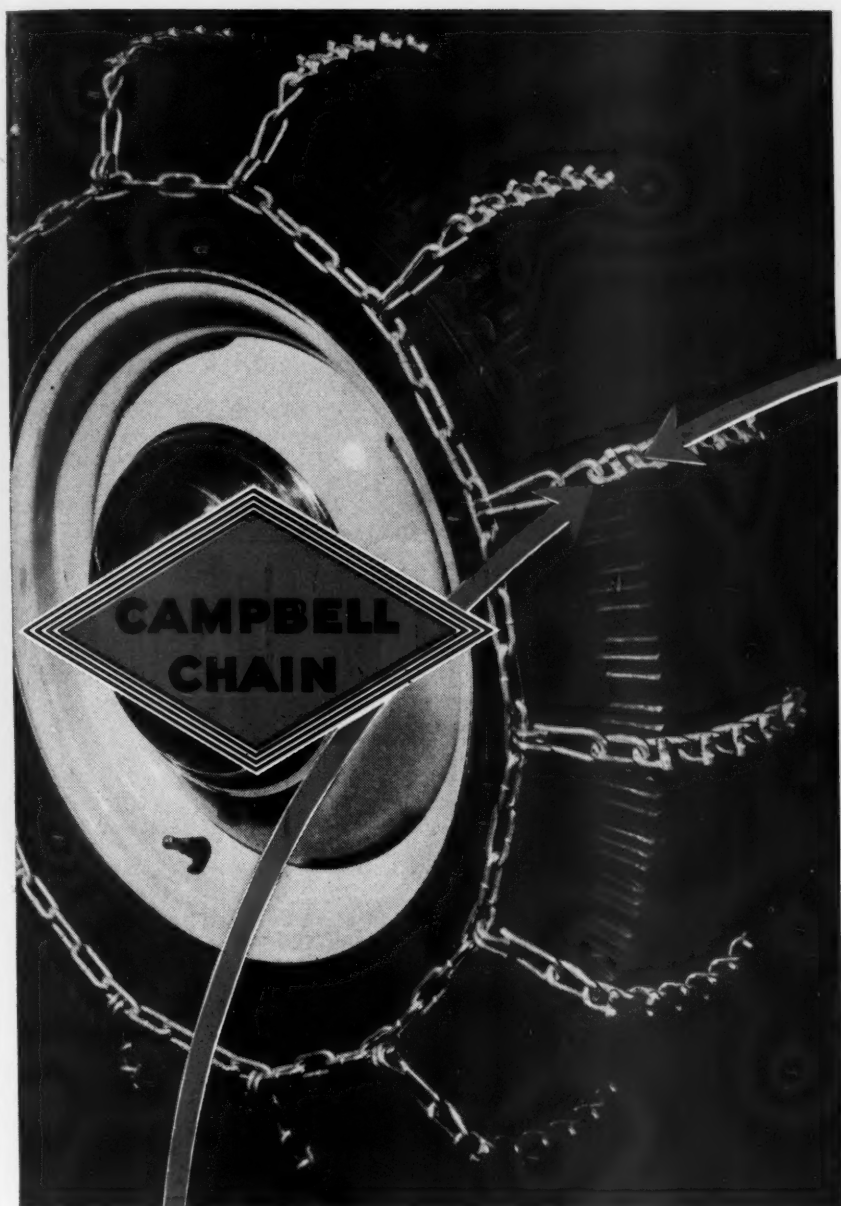
WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pure Pennsylvania
"Premium Grade"



P.G.C.O.A.
Permit No. 6



CAMPBELL

DOES IT AGAIN!

Introduces a new chain that gives longer wearing life and maximum traction

Another achievement brought about by the research and engineering skill of Campbell... newly designed *lug-reinforced* tire chains with saw-tooth cross bars! Chains that dig into the ice or snow and gear the tires to the road.

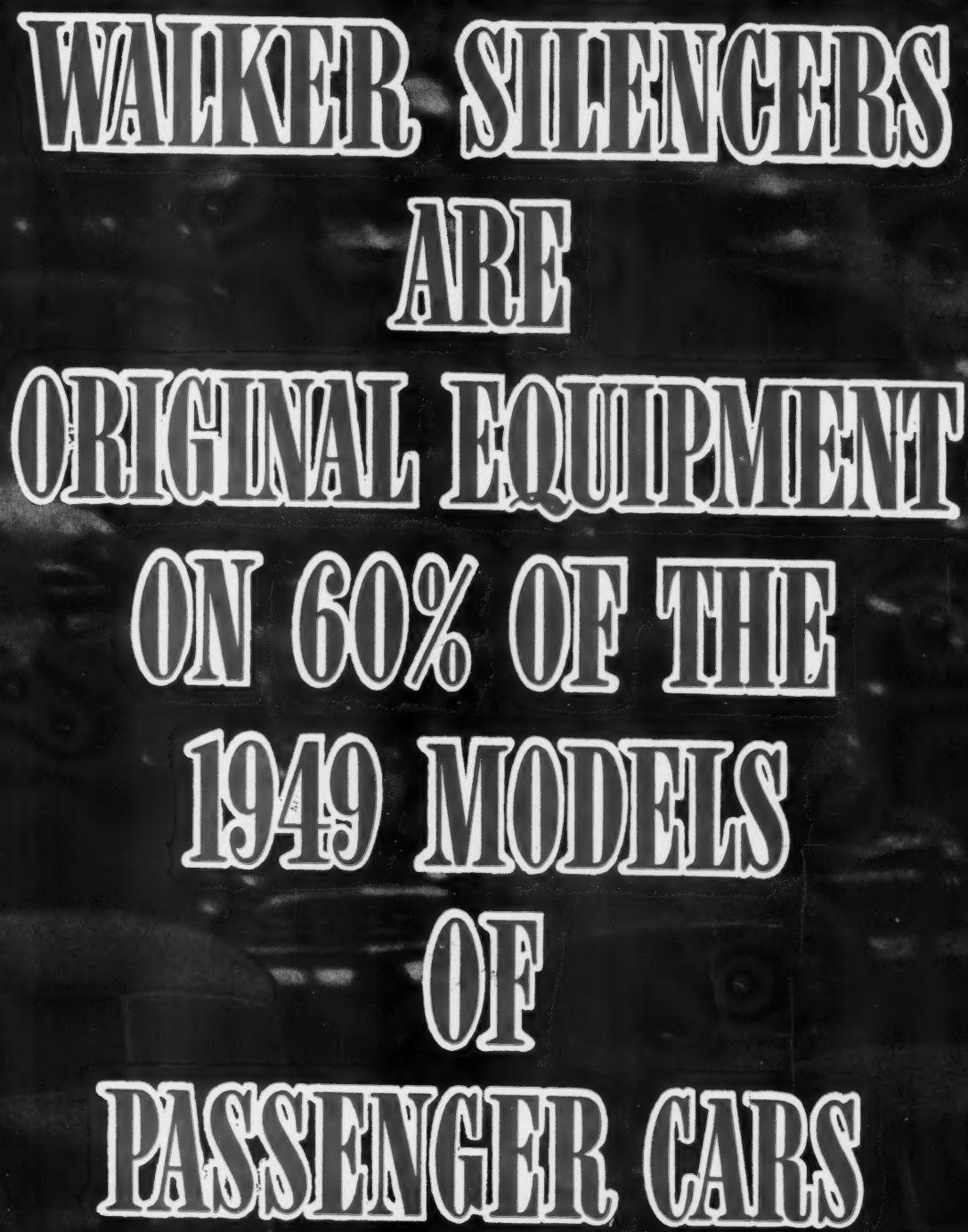
This new engineering feat from Campbell is in keeping with Campbell's reputation for constantly introducing the latest and best possible in chain design. Campbell also backs your sales program with sound merchandising and nationwide advertising.

For complete information on this newest Campbell design, see your jobber or write direct.

CAMPBELL CHAIN *Company*

(INTERNATIONAL CHAIN & MFG. COMPANY)

York, Penna.



**WALKER SILENCERS
ARE
ORIGINAL EQUIPMENT
ON 60% OF THE
1949 MODELS
OF
PASSENGER CARS**

*"I.T." DOES MAKE A DIFFERENCE!

No finer tribute can be given to the Walker concept of proper muffler design than today's record of accomplishment. *Walker Silencers are original equipment on 60% of the 1949 models of passenger cars as reported in Automotive Industries.* An expression of confidence . . . a recognition of basic ability unequalled in the entire exhaust system field.

Yet even this great record is not reason for complacency. Walker engineers are now at work on the engines of tomorrow, solving the new exhaust system problems which will be created by the new power plants that will drive our automobiles in the years ahead.

Walker leadership is not by chance. Since 1933, Walker-designed mufflers have been original equipment on many of America's finest automobiles. Basic and progressive research . . . deep and fundamental understanding of proper exhaust control and how best to accomplish it . . . exclusive laboratory equipment for searching out "the better way" . . . and the physical production facilities for *building* mufflers "the better way"—all have combined to give Walker a unique position in the exhaust system world.

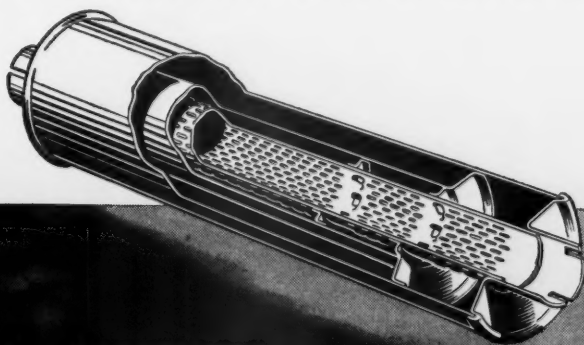
"*Individual Tuning*"—the distinguishing mark of Walker Silencers—was born deep in the heart of automobile engines . . . deep in the knowledge that no two engine designs are alike in performance . . . in back pressure . . . or in exhaust sound characteristics . . . deep in the belief that mufflers must be built to a standard of individual performance—not to a convenient short-cut standardized construction.

Walker "Individually Tuned" Silencers are designed and built in every detail to the specific requirements of the engine upon which they are to be installed. *I. T.* does make the difference in performance . . . in back pressure . . . in sound control . . . and in fit.

WALKER MANUFACTURING CO. OF WISCONSIN • RACINE, WISCONSIN

Also Makers of Walker Lifts, Jacks, Oil Filters

WALKER SILENCERS



**Individually Tuned to each make
and model of car*

IMPORTANT?

FOUR MILLION DRIVERS say so!

*One reason
is, it's
automatic*

Trico's Automatic Windshield Washer is the leader in car buyers' acceptance in 1949.

That's because car and truck owners really need and want it.

More than four million users tell others how indispensable it is when road mist, dust and grime blur the view ahead.

Right now Trico's stepped-up advertising is appearing monthly in 17 million copies of the Saturday Evening Post, Life, Time, Collier's and the Country Gentleman. And right now is the time to let your customers know that you can install it in a matter of minutes.



The famous "Two Little Squirts"

Fourteen makes of cars are piped at the factory for the "Two Little Squirts."



Windshield Washers

FULLY AUTOMATIC... NOTHING TO PUMP
Trico Products Corporation, Buffalo 3, N. Y.



Choldun

OIL SYSTEM PURGER

DRAINS THE CRANK CASE
IN LESS THAN 2 MINUTES



NATIONALLY ADVERTISED PRICE — \$169.50
West of the Rockies — \$179.50

You can't sell "Fresh" NEW Oil
unless you get the "TIRED" OLD
Oil out of the Car!

ONLY THREE OPERATIONS:

1. Your customer sees the Dirty oil and Sludge drain into the Pyrex cylinder.
2. The Dirty "Tired" oil then drops into a 15 gallon container inside the OIL SYSTEM PURGER.
3. Flushing (an extra profit service) may be made with any reputable Flushing Oil in just 30 seconds.

Consult your capacity chart and put in clean, "live," fresh Oil.

Only this Unit can remove OIL from Crank-case, show it to Car Owner (to immediately advise whether OIL should be added or changed), and RETURN Oil to Crank-case in 30 seconds if it does NOT have to be changed.

Choldun

MANUFACTURING CORP.

New Haven, Conn.

SALES OFFICE: 11 WEST 42 STREET, NEW YORK 18, N. Y.
EXPORT OFFICE: 238 Main Street, Cambridge 42, Mass.



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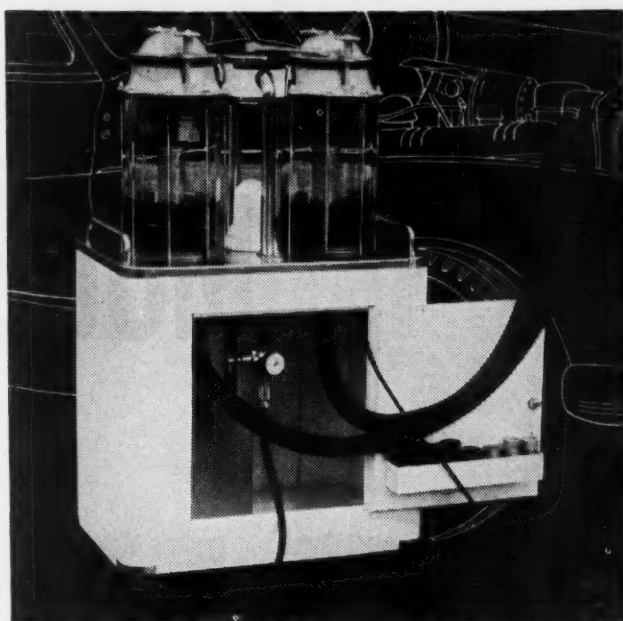
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Choldun

PRESSURE PURGER

CLEANS COOLING SYSTEM
IN LESS THAN 30 MINUTES



NATIONALLY ADVERTISED PRICE — \$295.00
West of the Rockies — \$310.00

TRIPLE ACTION CLEANING!

1. MECHANICAL AGITATION
2. PRESSURE FILTERING
3. PRE-HEATED CHEMICAL SOLUTION

DRAMATIC -- IMPRESSIVE -- EFFECTIVE

Your Customer can actually see the SCALE, RUST, GREASE and GRIME as it is "PRESSURE PURGED" from the Radiator and Motor Block!

WE HAVE CAR MANUFACTURERS' APPROVAL

CHOLDUN MANUFACTURING CORP.

11 West 42nd Street, New York 18, N. Y.

- ☐ Please arrange for a Free Demonstration.
- ☐ Please send me complete details on the PRESSURE PURGER and the OIL SYSTEM PURGER and how they will increase Sales.

Firm Name

Address

City State

YOU CAN'T OFFER A MORE ACCEPTABLE CHAM



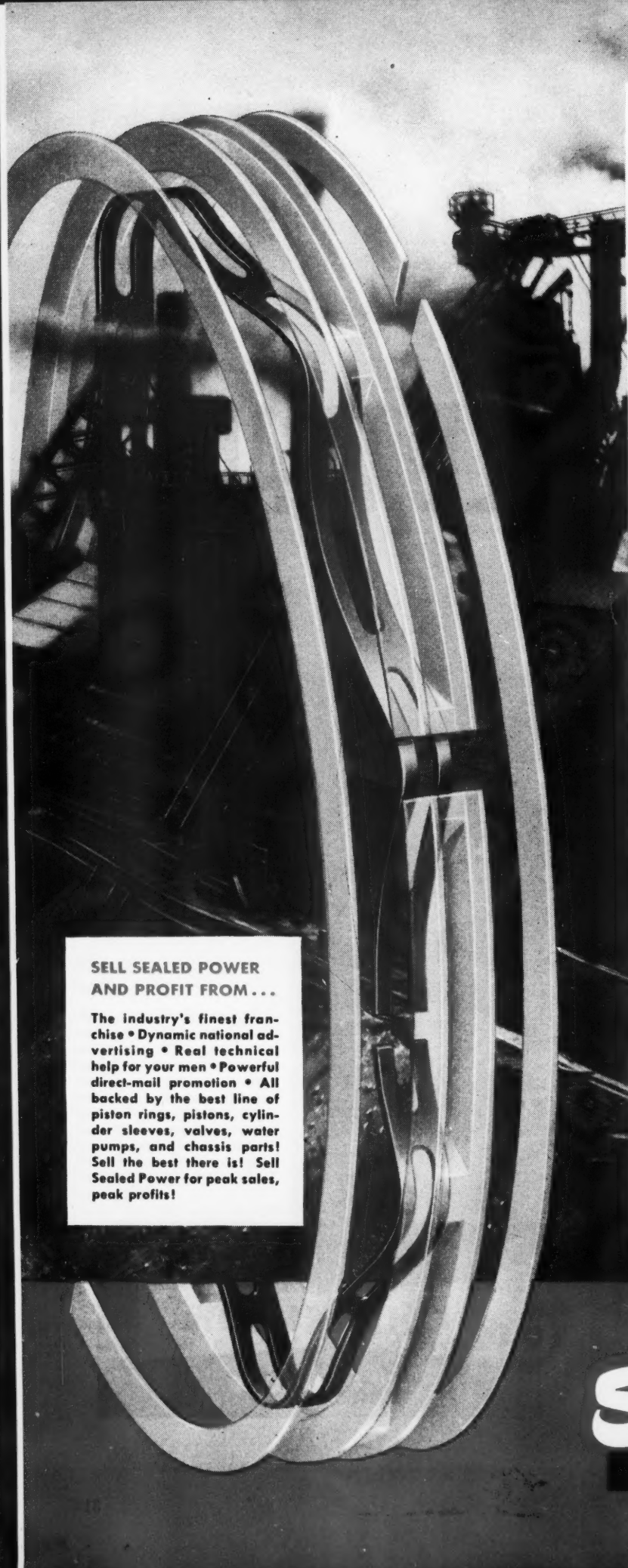
first in public preference

A SPARK PLUG E TO MORE PEOPLE THAN PION

e for over a quarter century...



CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO



**SELL SEALED POWER
AND PROFIT FROM...**

The industry's finest franchise • Dynamic national advertising • Real technical help for your men • Powerful direct-mail promotion • All backed by the best line of piston rings, pistons, cylinder sleeves, valves, water pumps, and chassis parts! Sell the best there is! Sell Sealed Power for peak sales, peak profits!

**READ WHAT PENNSYLVANIA SAYS ABOUT
MD-50 STEEL OIL RING**
The only ring with the FULL-FLOW SPRING

"A 1940 car was using as much as 3 quarts of oil on a 260-mile trip. After we overhauled the engine and put in new Sealed Power Rings with the Full-Flow Spring, the customer drove this car 1,000 miles without needing more oil. He is very much pleased and so are we."

Murray's Garage,
Pittsburgh, Pa.

"MANY SATISFIED CUSTOMERS"

The great new MD-50 Steel Oil Ring is bringing praise like this from mechanics everywhere: "Car uses less oil than when new" . . . "Many satisfied customers" . . . "Customer very much pleased" . . . "Not a failure in 100 ring jobs." Satisfied piston ring customers build your sales in all departments. Sell the rings that build satisfied customers! Sell Sealed Power!

**EXCLUSIVE ADVANTAGES INCLUDE:
TWICE AS MANY SLOTS**



CURVES

Instead of HUMPS
for POSITIVE PRESSURE

**GREATER BEARING AREA
FOR LONGER LIFE**



For easier installation, better results, happier owners, sell the Sealed Power MD-50 Steel Oil Ring—the ring that **SAVES OIL, SAVES GAS, SEALS POWER!** Talk to your Sealed Power Distributor! Sealed Power Corporation, Muskegon, Michigan.

NATIONALLY ADVERTISED IN:

Saturday Evening Post
Collier's
Popular Mechanics
Country Gentleman
Successful Farming
Progressive Farmer



Sealed Power
PISTON RINGS

BEST IN NEW CARS

BEST IN OLD CARS

MOTOR AGE

JULY 1949



NEWSCOOP

Chicago Auto Show Advanced to 1950

Chicago's first post-war automobile show, originally scheduled for next November, has been deferred to Feb. 18-26, 1950. New models, many of which won't be available for November display, are expected in a full turnout in February. Show will be held in Chicago's International Amphitheater.

Future of Regional Shows

Equipment and Tool Institute has under consideration a Trade Show policy which may be announced as soon as members have acted upon it. An adjunct to the policy will be certain "standardization recommendations" pertaining to the location and timing of local and regional shows.

Out of Philadelphia came the announcement that the Middle Atlantic Regional Automotive Show will not be held in Philadelphia next year. 1951 plans call for a show in the Quaker City, however. Meantime, there is some talk of the show moving to Boston in 1950.

San Francisco is set for the Pacific Automotive Show, Feb. 16-19. The Southwest Automotive Show held for the past two years in Dallas has not as yet announced time and place of its 1950 show.

Deo Directs N A D A

Robert Deo, who has been General Counsel of the National Automobile Dealers Association since 1944, has been unanimously selected by the Executive Committee as Managing Director of the organization, succeeding Robert W. Knee-bone.

G M Plans N. Y. Show

A reliable report says that General Motors again will hold a special showing of its new model automobiles and other products at the Waldorf-Astoria Hotel in New York early next year. It is believed that the date will be approximately the same as that of this year's show which opened Jan. 20 and ran for a week.

Five MUSTS

The successful automotive parts jobber should bear in mind these five musts for 1949:

- 1—A GOOD INVENTORY CONTROL.
- 2—A GOOD CUSTOMER RELATIONSHIP.
- 3—A GOOD ANALYSIS OF COMPETITION.
- 4—A GOOD SHARP EYE ON CREDIT.
- 5—A GOOD SOURCE OF SUPPLY.

That's the seasoned opinion of Al Hansen, President, Automotive Jobbers Council, a veteran automotive jobber.



GM Transmission Refill

General Motors has revised the refill period for both Dynaflo and Hydra-Matic transmissions. Previously the first drain period was at the end of 6000 miles of service, but this has been eliminated and now both types of GM automatic transmissions have a standard refill period every 15,000 miles. Formerly the Hydra-Matic called for a refill schedule of every 12,000 miles on Cadillac and after 15,000 miles on Oldsmobile and Pontiac. The schedule on the Buick Dynaflo was 10,000 miles. The move ties in with General Motors' recent action in adopting one fluid for both types of automatic drive.

"B" Body for Buick

Introduction of the new General Motors "B" body on the Buick Special early in August may set the stage for use of the same body on one model Cadillac, and at least one Oldsmobile series. Pontiac is going to look rather carefully at the "B" body. Apparently no decision has been made as to whether it will be adopted. Last year Pontiac had both "A" and "B" bodies on two different wheelbases, but the division is considering carefully whether it will take the larger, roomier "B" which would require a price differential.

Attempt to Organize

The International Association of Machinists is now conducting a vigorous drive to organize an estimated 300,000 unorganized automotive machinists, mechanics, body men and painters. This union has been organizing such workers for more than 15 years and now estimates it has among its membership about 100,000 such workers.

The 300,000 workers which the union hopes to organize are employed by new car dealers, fleet owners, and truck manufacturers' factory branch sales and service units. The drive will eventually cover 93 of the largest cities in the country. Cur-

rent efforts are strongest in Boston and Kansas City.

The union is not concerned with one or two-man shops but is aiming at shops employing eight or more workers. Average employment by the groups listed above of workers of this type is estimated at about 8 per unit. The union hopes to get for the unorganized workers the benefits which it claims are now being enjoyed by the organized members of the trade, including weekly guaranteed wages, paid holidays and vacations, shift differentials and on-the-job seniority.

Union spokesmen claim that industry will benefit from the organization of these employees since it will mean the elimination of the competitive factors which result from piece-work payments.

FOUND—335,000 Repair Jobs

A huge volume of new business—repairs on 335,000 southern California automobiles—resulted from "Check your car—Check your accidents," the mass safety maintenance program sponsored during June by the Motor Car Dealers Association of Southern California, the Los Angeles Motor Car Dealers Association, and the Greater Los Angeles Chapter of the National Safety Council. Car dealers cooperated in offering a free safety check to every motor car in the area, without condition or restriction. Of the 2,800,000 cars in the region, about one million had the free checkup. Of the 33 per cent found defective the breakdown was as follows: lights, 50 per cent; brakes, 14 per cent; windshield wipers, 9 per cent; horns, 8 per cent; tires, 6 per cent.

N.S.P.A. Plans Poll

The Board of Directors of the National Standard Parts Association met last month to formulate plans for its annual business meeting. Action resulted in the decision to poll its membership on whether or not such a meeting should be held, in view of the fact that there will be no Automotive Service Industries Show this year.

If N.S.P.A. members vote negatively on the poll, one-day meetings may be held in Kansas City, Boston and Chicago, tying-in with other N.S.P.A. one-day stands held from coast to coast earlier this year.

Sheet Metal Parts Supply

The unprecedented demand for sheet metal automotive repair parts has brought at least five companies into that line of supply since the end of the war. One of them is a major West Coast aircraft company which is using its presses to stamp out sheet metal automotive replacement parts. Normally, the cost of dies for such an operation are prohibitive in view of the volume of business involved and the competition from the original automobile manufacturers who must have the dies anyway for production of new cars. It is something of a question whether the outside suppliers will be able to continue operations after the number of prewar cars is greatly diminished, since with new models new dies would have to be made and amortized. The cost of dies in the postwar period could be liquidated through the unprecedented demand for parts, but that situation will wash out sooner or later. However, there may be some possibility in the use of Kirksite dies which are much cheaper to produce, although they will not last as long as the steel type.

Company Parts Sales Down

One of the large automobile companies reports that its parts and accessory business this year will be down from 20 to 25 per cent below last year based on the trend thus far. The 20-25 per cent figure takes into account price inflation and actually reflects volume decline. Dollarwise the decline is estimated at about 10 per cent. The number of repair orders, however, is up slightly with customers labor down only a little.

Lincoln With H-M

Lincoln-Mercury Div. of Ford Motor Co. now is offering the Hydra-Matic transmission on its Lincoln and Cosmopolitan models as optional equipment at a price of \$200. It will be called by its trademarked name "Hydra-Matic." As first reported, adoption of the Hydra-Matic was scheduled to begin in May. However, because of the Ford strike, installation of the first units did not start until a month later. At the same time several changes have been incorporated into the cars including shortening of the propeller shaft to

conform to the automatic transmission requirements. A removable cross member has been incorporated into the frame to support the transmission and to facilitate servicing the unit.

Sales Fall Off

Sales by independent retailers fell off 4 per cent in May but were almost holding their own with May, 1948, down only 1 per cent. The Census Bureau further reports that motor vehicle dealers were an exception, reporting average May sales 36 per cent higher than a year ago although down 1 per cent from April, 1949. A seasonal increase of 5 per cent over April was reported by filling station operators whose increase over May, 1948, was estimated at 1 per cent.

Anti-Trust Statute

The Supreme Court last month struck down exclusive dealing contracts used by many major oil companies. The Court ruled that Standard Oil of California had violated the anti-trust statutes by using contracts which resulted in independent service station operators agreeing to buy only petroleum products and accessories sold or approved by Standard of California. However, the Court pointed out that its decision did not prohibit oil companies from using an agency system, under which independent service stations operate as company agents.

K-F Sales Climb

After a very dull selling season the first three months of this year, Kaiser-Frazer has rebounded and currently is expanding its production to 600 cars a day, or nearly double the rate of a few weeks ago. The company has recalled from 700 to 800 production workers and says that a further increase in production is planned if demand continues at its present level. K-F officials report that since prices were cut March 30, sales have been exceeding production and that demand for the new utility cars has been better than the most optimistic expectations. Currently, about 50 per cent of K-F production is devoted to the utility line.



Hudson's High Compression

Hudson is apparently taking issue with the rest of the industry about the need for overhead valve construction in high compression engines. A. E. Barit, president, says that the present L-head Hudson engines are capable of providing compression ratios up to 12.5 to 1. He said that with standard gasoline and aluminum head, the present Six has a compression ratio of 7.6 to 1 and the 8-cylinder engine, 7 to 1. He added that with 100 octane fuel and proper adaptations, both engines could go to 9.3 to 1, or higher if even better fuels become available.

Car Dealers Healthy on Coast

West Coast new car dealers, as a business group, have yet to feel the full effect of postwar readjustments. While business failures have been increasing since 1946, they are still below the prewar normal in a ratio of about 3 to 5, and consist of the weaker marginal dealers.

Chevrolet Engine

It is reliably reported that Chevrolet will use the present truck engine, possibly with slight modifications, in cars which will be offered as optional equipment at extra cost on 1950 models. It appears that the present passenger car engine could be used with a torque converter but that the torque characteristics of the truck engine make it more suitable and bring performance up to the standards set by the company. It is not known whether all passenger cars will carry the truck engine next year or whether it will be confined only to those equipped with the torque converter. Use of the truck engine in the passenger car also may be a hint about how Chevrolet is going when better fuels make higher compressions necessary. Significantly, Chevrolet's current advertising program stresses the trend to valve-in-head engines.

M.E.W.A. Booth Conferences

Motor and Equipment Wholesalers Assn. will hold its annual convention in Chicago beginning Dec. 5 with the Stevens Hotel as headquarters. At the same time MEWA will hold booth conferences between wholesalers and manufacturers wherein new merchandising plans for 1950 will be discussed. Out of these meetings come important sales aids, selling plans for automotive retailers.

Meanwhile, M.E.W.A. directors voted unanimously in favor of "a national automotive show held annually and conducted in a manner to insure it being based on the manufacturer-through-wholesaler-to-retailer system of distribution."

Regional Shows Successful

Several regional and local automotive parts and equipment shows have been held this year with varying degrees of success. Matching the success of the Pacific Automotive Show held in March, was the Middle Atlantic Regional Automotive Show held at Philadelphia. Final report called the latter show "the most successful ever held in this area." Some 235 manufacturers exhibited their products alongside displays of more than 80 sponsoring jobbers. Attendance was 25,000 which included dealers, service managers, repairmen and 3,000 vocational students who came in groups with their instructors.

Thermoid Offers Protection

A 60-day retroactive guarantee against price reductions on Thermoid automotive replacement products, went into effect last month. Plan covers period between June 1 and December 31, 1949.

In a letter to Thermoid Automotive Distributors, Arthur H. Styron, director of Thermoid Automotive Replacement Sales, said: "In the event that there be any reduction in price between now and December 31, either because of lower costs or because of competitive necessity, we will make our price reduction retroactive for 60 days from the date it was put into effect. In other words, on any purchase you may have made from us during the 60 days preceding any possible price reduction, you will get a credit to the extent of any difference in price."



EDITOR'S NOTEBOOK



Frank P. Lighter
EDITOR

Customer Relations

If you've got customers, treasure them. Nurture them. Keep them alive because they're worth their weight in Saving Bonds. Unlike muskrats, you don't have to skin them to collect on them.

Customers—real, regular customers are the only people that can keep your shop humming. Somewhere we read the following and we suggest that you memorize it, paste it in your hat or slap it up in front of your cash register:

DEFINITION OF A CUSTOMER

A customer is the most important person ever in this office, in person, by mail, or by telephone.

A customer is not dependent on us . . . we are dependent on him.

A customer is not an interruption of our work . . . he is the purpose of it.

We are not doing him a favor by serving him . . . he is doing us a favor by giving us an opportunity to do so.

A customer is not an outsider in our business . . . he is part of it.

A customer is not a cold statistic . . . he is a flesh-and-blood human being with feelings and emotions like our own.

A customer is not someone to argue or match wits with. Nobody ever won an argument with a customer.

A customer is a person who brings us his wants. It is our job to handle them profitably to him and to ourselves.

The Dragon, A Fafnir Roller Bearing Publication.

As We See It

We were honored to speak before some 700 members of the National Industrial Advertisers Association in Buffalo, last month. Here's what we said, in part:

"Two-thirds of the 40,000,000 cars and trucks on the road are pre-war vehicles. Nine or more years old.

"Thus, the need and demand for new cars, for used cars, for service and repairs, for parts and accessories, for good tools and efficient shop equipment, for gasoline, lubricants and tires, is great. And, the outlook is good.

"A realistic appraisal made by those who know the industry leads to the conclusion that, while competition grows keener and stronger with each succeeding sale, there continues a hardy demand for the end product of the automobile business—safe, smart, comfortable freedom-of-movement on wheels!"

Claude Klugh's Comment

We think that the comment expressed by Claude Klugh, general manager of the Pennsylvania Automotive Association, etches today's picture clearly. Says the P.A.A. bulletin:

"The zig-zag pattern of today's automobile market is reminiscent of the turbulent stock-market of some twenty years ago. Despite the mercurial condition, dealers who have been in the business a long time are not alarmed, but view the situation optimistically. The judgment day is here, as it were, when the chaff will be separated from the wheat, and those whose business policy has been sound, can shrug off the weeping of the 'fly-by-night' whose activities have been deplored during the lush, inflated years which are now history."

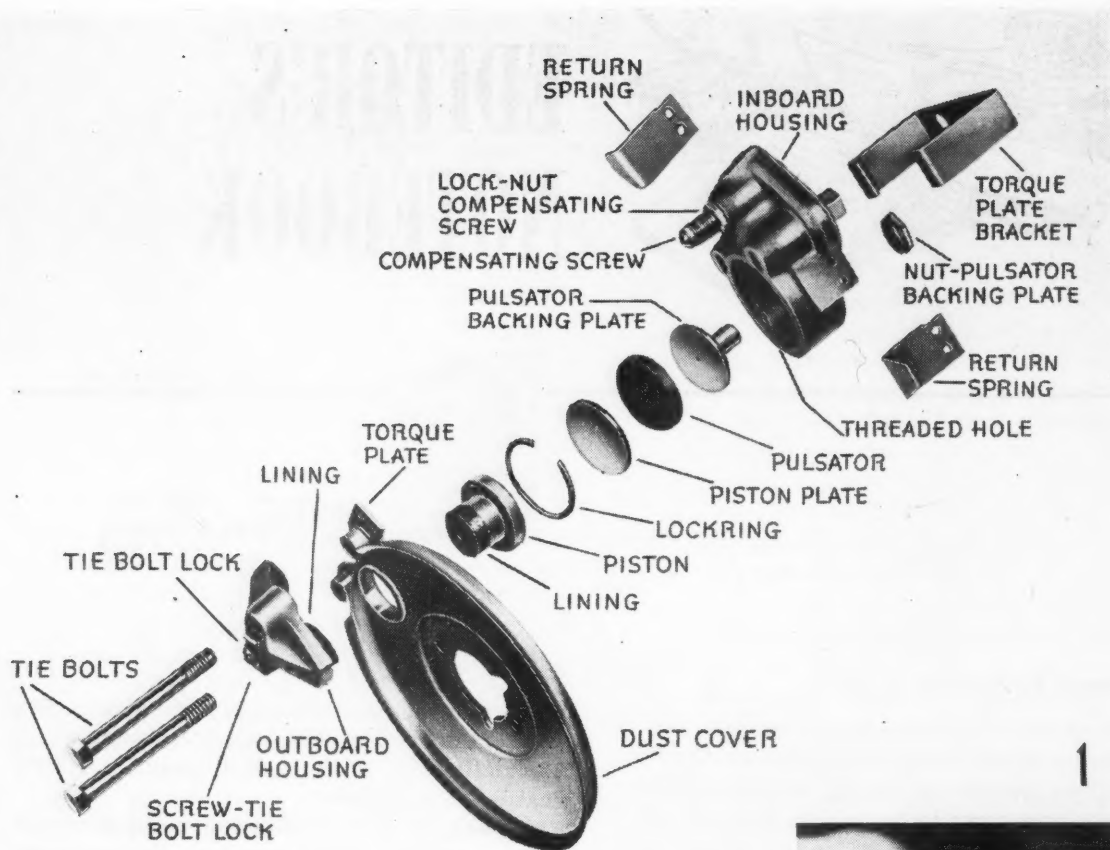
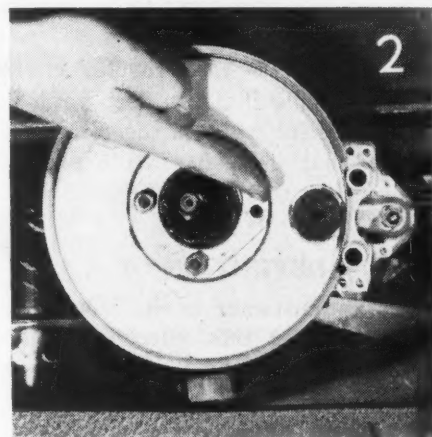


Fig. 1—Exploded view of the cylinder and backing plate showing the related parts.

Fig. 2—View of the left rear showing the stationary dust pan and one of the two friction "spots" which grip the cast-iron disc under pressure.



How the New CROSLEY

DISC BRAKE Operates . . . The current

A NEW hydraulic brake, designed after and built under the Goodyear-Hawley brake used on aircraft, has been adopted by Crosley Motors, Inc. This unit, which is to be designated as the "Hydradisc" brake, differs radically

from conventional automobile brakes in that a cast iron disc, instead of the brake drum, rotates as part of the wheel. In place of brake shoes, there are two $1\frac{1}{4}$ inch discs of brake lining material fixed on opposite sides of the rotating disc. When

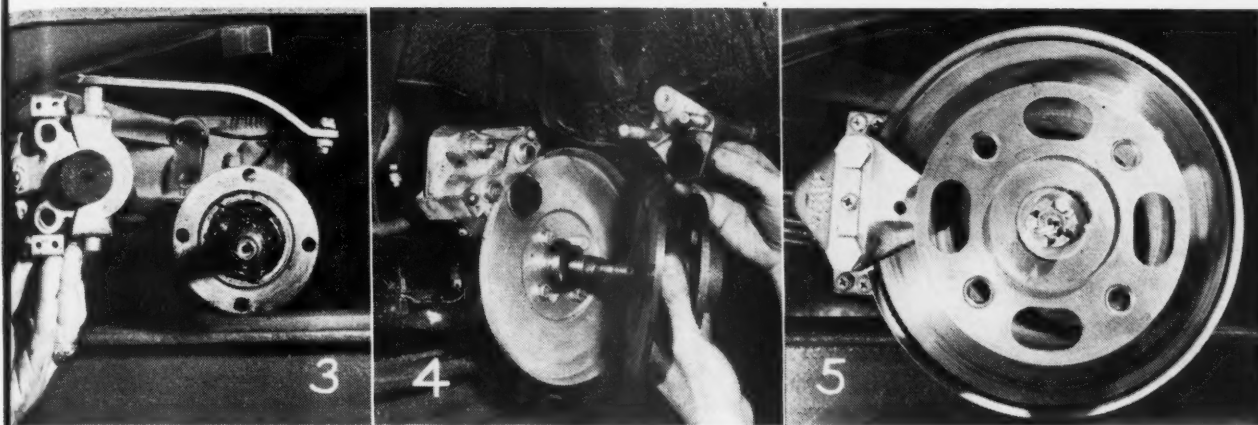


Fig. 3—View of the left rear hydrastatic unit, wheel hub in-board housing cylinder and the parking brake cam and lever.

Fig. 4—Exploded view showing the correct assembling procedure.

Fig. 5—View of disassembled front wheel brake showing the cast-iron disc which takes the place of the regular drum.

Fig. 6—Adjusting the screw lock-nut. Loosen this lock nut and turn in on outer adjusting screw.

Fig. 7—Single-screw adjustment. Turning this screw in compensates for wear on the brake lining spots.

Because the two "spots" faced with brake lining material engage only a small part of the revolving disc surface at a time, all the rest of this surface remains comparatively cool, according to Crosley. Application of braking pressure on a disc instead of a drum is said to prevent the "fading" which sometimes results from the accumulation of mud, water, snow, or oil in the drum. It is claimed that these are slung off the disc by centrifugal force, thus keeping the surface free of foreign material. The friction spots, under pressure, wipe clean their path at each revolution of the wheel and disc.

The compensating screw is located on the inboard housing cylinder.

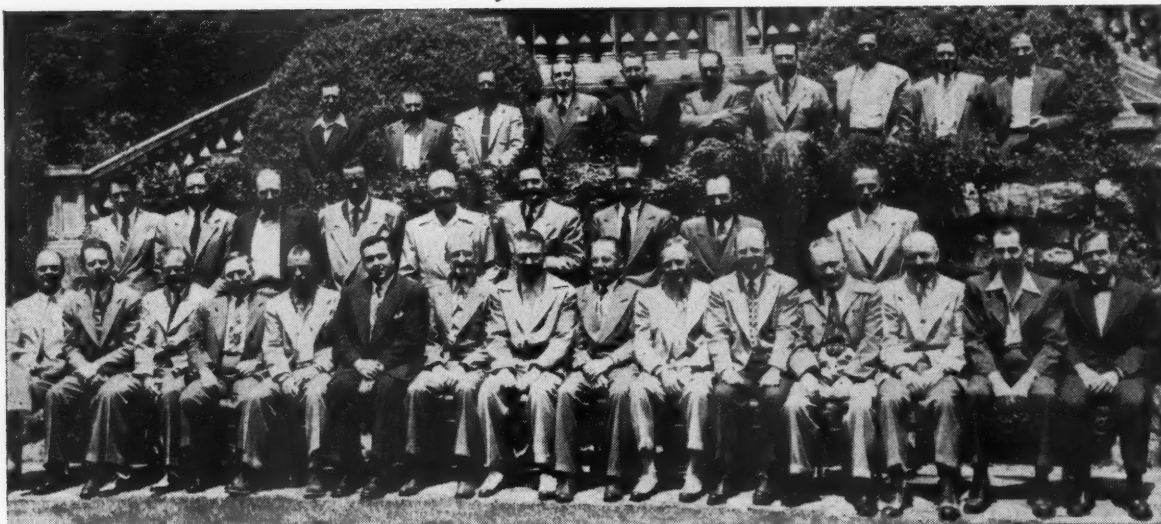
To assure maximum efficiency of the manual parking brake, the latter is linked directly with the hydraulic system on all cars and trucks, and the same friction spots hold the wheel whether the foot- or hand-brake is used.

The brake is adjusted by turning the compensating screw on the in-board housing cylinder. It is said that these brakes do not require more than one adjustment in a year

of normal operation, and several compensating adjustments can be made before it is necessary to replace the friction spots. Single-screw adjustment and accessibility to the lining surfaces of
(Continued on page 74)

the brake is applied, these friction "spots" clamp against the disc under hydraulic pressure. In other words, when the brakes are applied, the rotating disc is squeezed between the two "spots" which apply equal pressure from either side.

Crosley has new hydraulic brakes and a cast iron block



Automotive Advertisers Council and guests at the spring meeting of the Council held at The Homestead, Hot Springs, Va.

Ad Managers at Work for You

Automotive Advertisers Council plan aids for jobbers and service dealers. Duane Jones elected president.



HOW automotive parts and equipment manufacturers can best help wholesalers and their dealers get their share of the automotive service market was one of the headline topics at the spring meeting of the Automotive Advertisers Council, held at Hot Springs, Va., last month.

Council members, representing leading automotive service industries parts, tools, equipment and chemical manufacturers, heard E. S. Sensitive, advertising manager, Bonney Forge & Tool Works, discussion leader on this subject, outline a 3-point program in which he pointed out that the manufacturer must become a working partner of the selling organization of the distributor.

Duane Jones (left), new president of Automotive Advertisers Council, is congratulated by Walter Kirkpatrick.

Duane Jones, advertising man-
(Continued on page 106)

Tell Your Customers the Truth

FOR some time the Better Business Bureau, the Federal Trade Commission and people generally have been concerned over the imposition of hidden finance charges upon the purchasing public. Automobile Trade Associations, Financial Conferences, as well as individual members of these groups, have tried in vain to find an overall solution to the problem.

Let it be understood at the outset that we have no quarrel with the doctrine accepted by the courts that the seller of an automobile may name a greater price when he sells on time than when he sells for cash.

If an auto dealer wants to give his cars away and make his living as a "note shaver" it's all right with me, provided, of course, that he tells his customer the truth. The Federal Trade Commission



The Honorable
Lowell B. Mason

just doesn't like sales' transactions clouded with deceit. I am told the practice is wide spread but by no means universal, for there are many automobile dealers who disdain to use subterfuge in extracting cash from their customers. These men will have no truck with private kickbacks from banks or commercial credit organizations that loan their customers money to buy their products. These dealers prefer to concentrate on merchandising and servicing cars and do not care to get into the small loan game.

By the same token that if you are really sick and want the best medical service you don't go to a doctor who sells insurance or real estate on the side. So these dealers believe it makes no difference what business or profession a man is in, "a side line" is a "side line."

Besides those who refuse to accept secret kick-

Regulation by Conference is an attempt to draw together government and business

by Honorable Lowell B. Mason
Acting Chairman, Federal Trade Commission

To eliminate and prevent "packing" practices in the sale and financing of automobiles purchased on the installment plan, the Federal Trade Commission will call a trade practice conference. Automobile dealers, automobile manufacturers, and financing organizations and other interested groups will be invited to participate in the conference in Washington, September 15, under the supervision of Lowell B. Mason, Acting Chairman of the Federal Trade Commission.

backs from finance companies there are a considerable number of dealers who dislike the practice, but are persuaded to accept what they euphemistically refer to as "dealer participation" in what is technically known as the "time price differential." The car merchant across the street accepts them and they feel they must also do so to stay in the swim.

With this argument I have some sympathy, for while no one condones the lack of candor on the part of an auto dealer when he refuses to disclose the items in financing a car sale, still I count it the duty of government to make the rules of fair business conduct generally observed so that no law abiding merchant suffers the handicap of too many competitors who won't tell their customers the truth.

It is this personal sensitiveness of mine, regarding the duty of government, that makes me have no sympathy with people who urge that the Federal Trade Commission should immediately inaugurate a series of hit-and-miss prosecutions

(Continued on page 76)

UNDERCOATING Brings Big R

THE undercoating business is good at Gerwig-Nelson Motors, Inc., a Buick dealership on Chicago's South Side.

This firm is realizing a net profit of nearly \$10,000 a year on an original capital investment of some \$250.

W. A. Gerwig, president, declares that success depends on combining good selling with good service and quality materials.

"Even during the buyers' market," Gerwig commented, "we made it a point to convince each new car buyer that the undercoating on his car was a good investment. Then we backed it up with a careful, thorough job of spraying each car.

"As a result, a lot of people who bought cars from us in '46, '47 or '48 are coming back now for new cars and are asking for undercoating. Three-fourths of our new car customers who have had undercoating once, ask for it again.

"In addition, many of the people who are buying new cars for the first time since the war are interested in undercoating. They've read about it in advertising or heard about it from friends, and they're usually easy to sell."

Gerwig-Nelson began undercoating automobiles in February, 1946, and has since sprayed the protective underbody coating on more than 1,500 cars—an average of 500 a year, at \$40 per job, with half of that clear profit, for an annual net return of some \$10,000.

Present rate is 12 to 15 cars per week, which, if continued, will mean 624 to 780 jobs in 1949—a gross volume of between \$25,000 and \$31,000, with half of it representing new profit.

"The profit is almost automatic on this type

Manufacturers' advertising campaigns have made car owners conscious of the value of undercoating their cars. Now is the time to cash in on this market



W. A. Gerwig, of Gerwig - Nelson Motors, Inc., demonstrates the sound-deadening qualities of undercoating to a prospective customer.

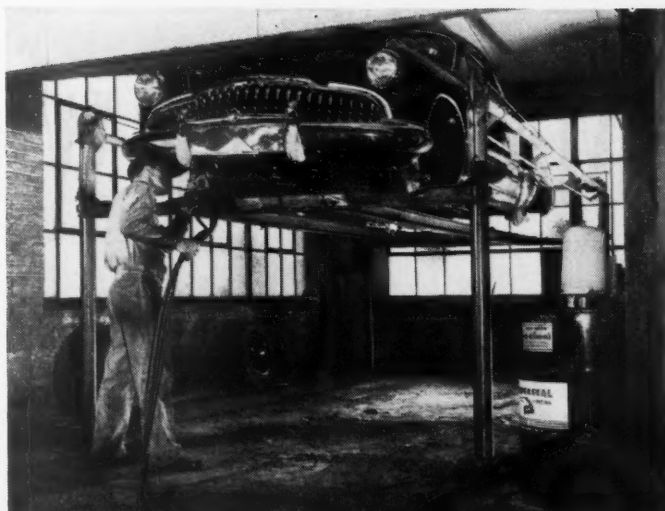
of work," Gerwig commented. "You certainly don't have to skimp to get by. You can use the best materials and do the best possible spraying and still make a 100 per cent profit.

"If you do skimp, either on the material you use or on the effort you devote to the job, you'll be making enemies instead of friends.

"In the first few weeks after we started undercoating, we had a few bad jobs—I suppose everyone had the same experience—and

g Returns

Undercoating a 1949 Buick. Sand on the floor simplifies clean-up, and a canvas drop permits the room to be closed off.



Undercoating the gravel-guard. This deadens the noise of flying road-debris and prevents abrasion.



Spraying the underneath of the hood, which deadens sound. Slightly over 1/8 inch coating is used.



we were a long time living down the bad effect left on those customers.

"We decided right then that this thing might boomerang if we weren't careful. So we've been careful, and business has been good," Gerwig reviewed.

Service Manager F. E. Hayden gives this breakdown on undercoating costs per car: Material, \$8.80; Labor, \$7.00; Selling, \$2.00; Overhead, \$2.00; Total, \$19.20—slightly less than half of the \$39.50 price.

Within those figures lie some of the secrets of the success of the Gerwig-Nelson undercoating operation.

The labor is piece-work at \$7 a job—and the applicator is naturally interested in doing as good a job as possible, in order to insure as many repeat jobs as possible. In addition, the applicator wants equipment that works, so he takes

(Continued on page 114)

Make Your Working Capital

Understand your working capital and how to make the most of it if you want top dollar from your business

WORKING capital has always been of prime importance. In prewar days, it was often given too little consideration until the well ran dry. Too few automotive repairmen or car dealers then considered the trend of their working capital ratios, few consider this important element of management now, although most are quick to spot a downward trend in sales, expenses or profits. These elements are watched carefully, but working capital, the keystone upon which all other business elements rest, is left to shift for itself.

Many operators in this industry do not even know how to figure their working capital.

Working capital comprises the funds for current bills due, such as purchases of merchandise, parts, payroll, interest, advertising, and so forth. It is the excess of current assets over current liabilities. If current liabilities exceed current assets, you have a floating debt. Working capital consists of two parts: (1) cash assets, comprising

cash and receivables, (2) trading assets, comprising inventories, less accounts payable and short-term loans payable.

Because taxes for some time will take a substantial portion of profits and because operating costs will be high for some time despite the decline in sales and prices, the ratio considered safe during the war and early postwar years is no longer safe.

Before the war, when cash assets equalled current liabilities, the financial condition of a business was considered satisfactory. If cash assets (cash and receivables) had a ratio to trading assets, (inventories), of 2 to 1, this was also considered quite satisfactory. It was customary to conclude that the higher the ratio of cash and receivables to inventory, the lower the working capital requirements, because in prewar days there was less confidence in the liquidity of inventories. Then, inventories were subject to market

(Continued on page 118)

How to compute your Working Capital

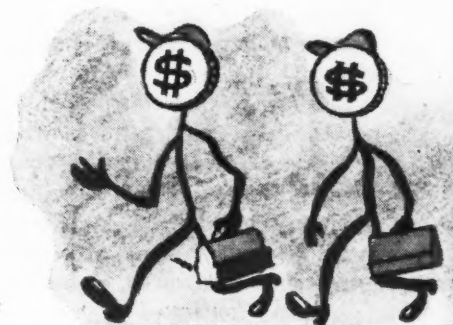
CURRENT ASSETS

Cash in bank	\$2,000
Accounts receivable	3,000
Notes receivable	1,000
Inventory	4,000
Total	\$10,000

CURRENT LIABILITIES

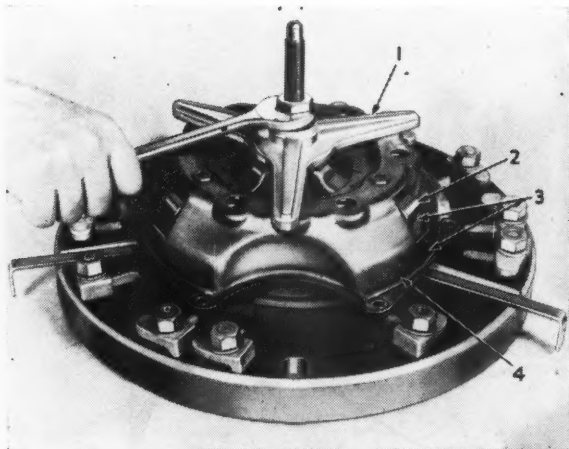
Accounts payable	\$2,500
Loans payable	2,000
Accrued liabilities	500
Total	\$5,000
Current ratio is 2 to 1 (assets divided by liabilities).	
Working capital is \$5,000 (assets minus liabilities).	

by Arthur Roberts

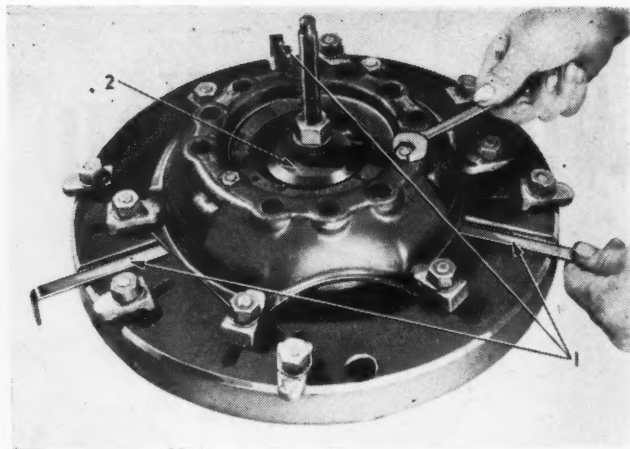


1 Work for You





Clutch cover and pressure plate assembly in fixture. 1—Clutch cover. 2—Clutch pressure plate. 3—Fixture. 4—Punch marks on pressure plate and cover.



Cover mounted in fixture for adjusting clutch release levers. 1—Feeler blades. 2—Compression plate.

Diagnosing Clutch Problems

THE most common complaints on present day clutches are slipping, chattering, and grabbing.

Diagnosing and trouble shooting before tearing the job apart can often be completed successfully. In addition to actual work on the clutch, motor mountings should be checked for wear and deterioration, and engine radius rods tightened or replaced. The fit of the universal joint ball housing on torque tube jobs should be checked so that there is a definite drag on the retainer. Check the universal joint itself for wear, and also check the rear axle alignment.

Grease or oil on the facings account for most chattering and grabbing. If this condition is found, the rear main bearing seal or the clutch main drive gear retainer usually should be replaced. Worn pedal linkage should also be replaced.

The trouble shooting check list below will solve most clutch problems.

Causes of Chattering Clutch

- Oily or glazed clutch facings.
- Scored flywheel or pressure plate.
- Bent clutch disk.

Improperly adjusted cover assembly.

Defective motor mountings.

Loose radius rods.

Loose universal joint ball housing.

Causes of Dragging Clutch (hard to get in gear)

Improper clutch adjustment.

Damaged or warped clutch plates.

Sprung clutch disk or bent clutch shaft.

Sticking pilot bearing or throwout sleeve.

Oil or grease on clutch facings.

Misalignment between the engine and transmission.

Clutch facings too thick.

Causes of Grabbing Clutch

Improper clutch lining.

Worn or glazed facings.

Broken or weak springs in clutch disk.

Improper finger adjustment.

Oil or grease on facings.

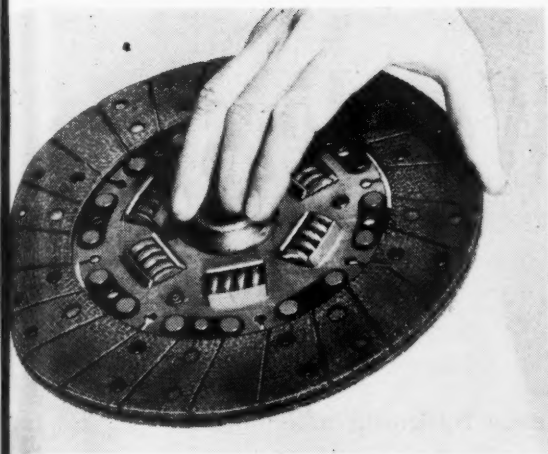
Clutch hub sticking on clutch shaft.

Damaged flywheel or pressure plate.

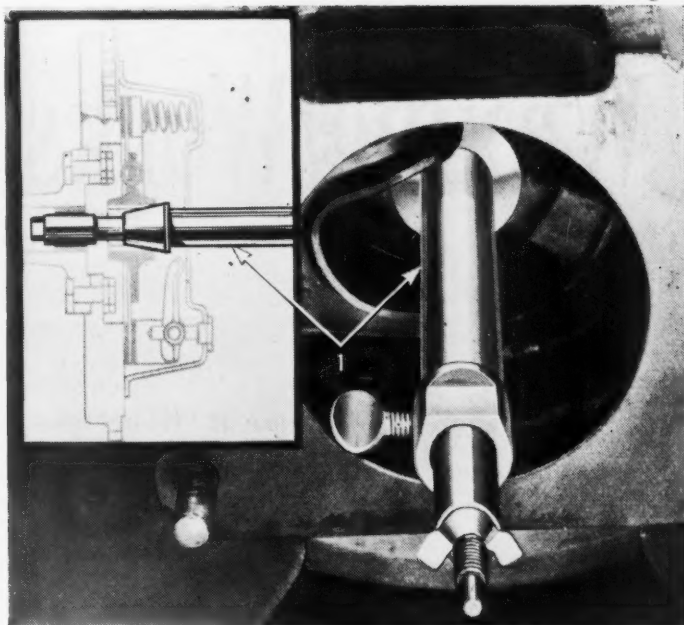
Causes of Slipping Clutch

Frozen or sticking pedal linkage.

Broken or weak pressure springs.

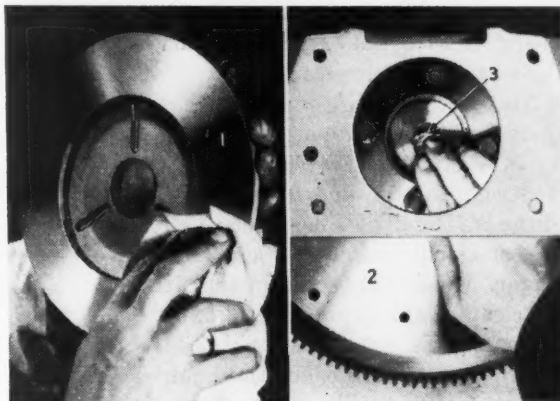


Examining clutch disk. Disk should be checked for oil and grease deposits. Also for broken or loose damper springs.



Above. Clutch disk alining arbor. Proper alignment of the disk is most important for proper clutch operation.

Below left. Removing grease and foreign material from pressure plate. Right. Lubricating pilot bushing.



troubles

is never an easy job, but a few minutes spent studying this check list will make it easier

by Jack Montgomery, Technical Editor

- Improper clutch adjustment.
- Oil or grease on facings.
- Sticking pressure levers.

Causes of Clutch Noises

- Worn splines or loose damper springs.
- Loose or worn retaining bolts.
- Dry or damaged release bearing.
- Damaged transmission mainshaft front bearing.
- Loose clutch cover fingers.

Equipment and Tools Suggested

- Clutch cover and pressure plate fixture
- Clutch disk alining arbor
- Bench press
- Hand tools
- Feeler gages
- Bushing extractors

Waxing Works Wonders..

..At the Till

Any shop can increase its labor sales volume by going after the customers who have been waxing and polishing their cars at home

THE motoring public spends an estimated \$16,500,000 per year on wax and polish which is applied at home. This retail sales figure represents hundreds of millions of dollars of labor sales volume if the work can be brought into the shop. Car owners, however, must still be convinced that a professional will do a better job on their cars than they can.

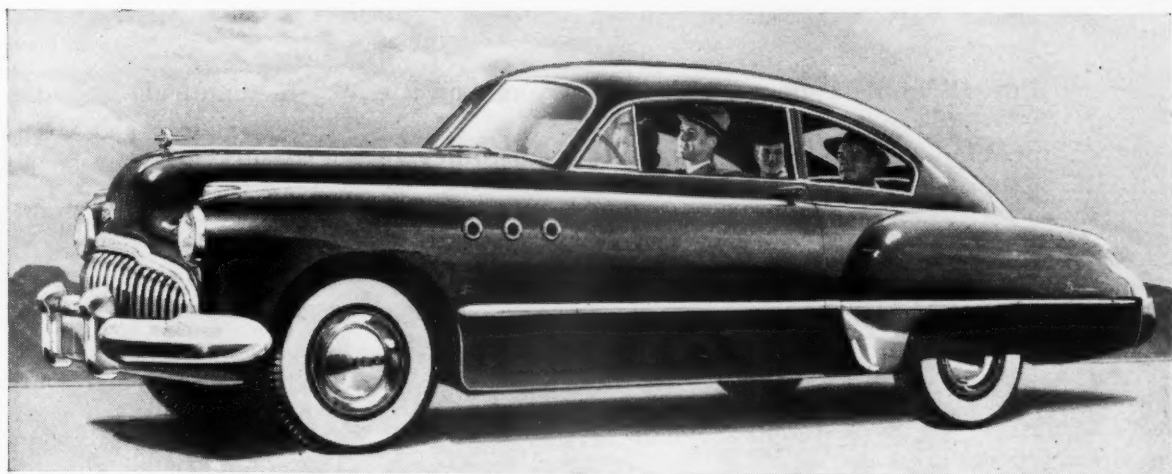
The customer can be shown that there is wide variation in the quality of wax jobs, and that an experienced man who knows the tricks of the trade will do a more thorough job that will look better and last longer. He should be shown that if the cleaning job is not thorough, or if the wax is not applied properly and rubbed up hard enough, the job will not last and will not serve its real purpose—to protect the car finish. Ask a man who does his own wax jobs these questions: Do you use tar remover first? Do you clean your surfaces thoroughly? Do you paint the tires, running boards and floor mats with a rubber preservative? Do you vacuum the interior? If he answers, "Yes," hire him, he's a good man! These items are the difference between the professional and the amateur touch.

In the shop, there is equipment for doing better work. Car buffers, for example, can be used to clean the finish prior to waxing, and they will give faster and better results than hand work. Also, many shops offer the spray-wax job, which requires special equipment and affords many ad-



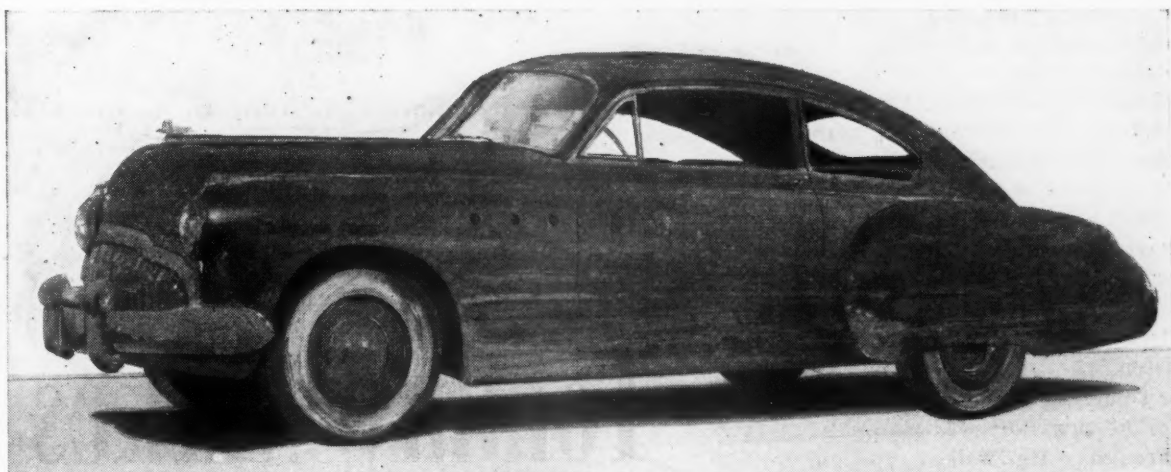
vantages. Most car owners do not maintain an adequate supply of cleaners, tire paint, chrome cleaners, tar remover, and the other products which make a first-class job possible.

The appraisal of a car hinges on three things—performance, condition and appearance. The latter of these is the first thing to strike the eye of the prospective buyer of a car. The first impression of a car, is one that works in favor or against the rest of the car as it is examined. An example of this, is the case of a man who recently attempted to sell his car, a fairly clean 1941 model. When the prices offered were too low to suit him, he invested \$12 in a good wax job and once more took bids. He received \$50 more with a shiny car than the highest bid of the previous day. A good



A new car looks like a million dollars when it shines ▲

But take the shine off and it looks plenty "used." ▼



wax job is a good investment for the car owner.

Once more, a good wax job is a good investment for the shop that does the work, as it will often sell several other jobs. Here's what makes a professional wax job professional:

- 1—A long lasting, high gloss finish.
- 2—Minor scratches touched up or compounded.
- 3—White sidewalls cleaned, or black tires painted.
- 4—Interior vacuumed and upholstery spots cleaned.
- 5—Floor mats cleaned and, on rubber parts, painted with rubber preservative.

By Arthur H. Nellen, Jr.
Assistant Editor

6—Windows cleaned inside and out.

7—Rust spots on chrome cleaned wherever possible with rust-re-

mover and steel wool, and coated with plastic spray to prevent further rusting.

8—All chrome work shined, and coated.

There are many preparations for maintaining automotive finishes on the market today. They are available in a variety of forms and are applied in many different ways. The spray-wax method is new on the market and increasing in popularity. With this process, the car is cleaned down and then sprayed with a fine mist of wax,

(Continued on page 124)

Pop O'Neill's apprentice comes through on a tricky mechanical problem then turns a disgruntled customer into a happy man

ON a hot Saturday afternoon in July, Tommy Winters was alone at Pop O'Neill's Repair Shop. Gas business had been slow, and Tommy had drifted back into the stock shelves where he was pushing crooked things straight and straight things crooked.

Suddenly a long blast on an auto horn brought him back out front on the run. His face lit up in a smile as he recognized Bert Dawson's 1947 Chevrolet loaded down with camping equipment and family. Bert was a newcomer to Glenrock and a neighbor of Tommy's. He was a heavy set pleasant fellow with a pretty wife and two lively youngsters who thought Tommy was just about perfect. And Tommy, in turn, thought Bert was a real addition to Glenrock.

"Off on vacation, at last!" remarked Tommy with a grin as he reached for the gas tank cap.

"Drop that cap!" snapped Bert. "And come up here and listen."

Tommy's smile disappeared for he saw Bert was mad clear through. He walked up and stood beside the window. "What's wrong, Bert?" he asked. "Anything I can do?"

"Anything you can do?" snorted Bert "you've done already—you or that half-baked jughead who calls himself a mechanic. Look here, Tommy. I got myself sold on that 'Cars Must Be Kept Safe' line right in this shop. And I let you do a relining job for me so I'd be 'safe' on my vacation. Then what happens?"

Tommy wisely refrained from answering, and Bert went on. "Everything's fine until I get almost home, then blam! The pedal gets soft."

By now Tommy had begun to get an inkling of Bert's trouble, and he set his brain to work. The lining job had been done by Larry Tait, Pop's regular mechanic for many years, and Tommy was sure it had been done right.

"That's when I called you over last night," continued Bert beginning to cool off a bit.



by Charles M. Kenyon, Managing Editor

Tommy Makes a F

"Yes," said Tommy. "I bled them a little, then the line seemed clear. And I checked all the linkage and the lines. And I'd already checked the master cylinder and the wheel cylinders when it was in the shop."

"See, here, you two," broke in Evelyn, Bert's wife. "I'm not interested in this mechanical double talk. Fix the car and let's get started!"

"Get started!" said Bert bitterly. "We're lucky if he can fix it at all."

"Aw, Pop," piped up Chip from the back seat. "Tommy can fix anything."

Tommy smiled and his confidence rose a bit.

"I can try anyway. Run it inside Bert, an' we'll put it on the lift."

As Tommy got his tool-box, Bert explained



Bert flashed Tommy a quick smile. "As a matter of fact it would help me a lot. I don't carry much cash on a camping trip."

Friend for Pop

what had happened this second time. "I backed out of the garage and the brakes were OK—pedal right up, and hard. I backed the car and got the wife and kids in. We hadn't gone five miles before the darn pedal went soft, so I came back."

"That's funny," said Tommy. "Runnin' the motor shouldn't affect the brakes." He checked along the line running to the left rear wheel. It was perfect. But there was a warm spot about three-quarters of the way back. "Say, Bert," he said. "I'll let'er down then start up that motor. I've got an idea."

Bert started the motor and Tommy slid under. He put his finger up to reach for the hot spot then yanked it back quickly. "Shut'er off," he yelled. "I've got it." He slid out from under and

stood up. "No wonder we missed this one," he said. "Your tail pipe has a hole rusted through it, up on the inside."

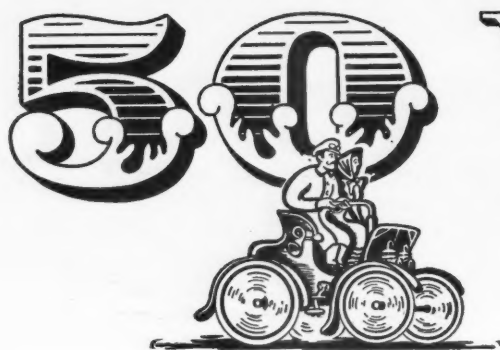
"Cut the nonsense," said Bert sharply. "If you can't fix my brakes, tell me so and let me out of here. Not that I ever expect to come back." He added significantly.

"It's true," said Tommy. "Your tail pipe has a little hole that sends hot exhaust right onto the hydraulic line leading to your left rear brake. Your brakes work OK until the line gets hot. Then the hydraulic fluid vaporizes and lets air get into the system."

Evelyn sighed. "Good-bye vacation! Here goes our time and money"

Tommy thought a minute before answering. "A new tail-pipe will do it, and probably a new muffler by the looks of that one. We've got one here that will fit your car, promised for Jed Wilson on Monday morning but Glenrock Replacement Parts will be glad to rush another one over first thing Monday morning. I can get it on in less than an hour, and you'll be on your way." He disappeared into the stockroom

(Continued on page 94)



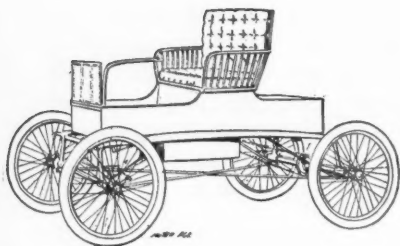
Years Ago in MOTOR AGE

A CHANCE FOR CARRIAGE BUILDERS

... W. F. Black, a manufacturer of carriage axles ... said that he was not worrying about the introduction of automobiles. He asserted that the bicycle had taught people to ride and that many of them eventually did their riding in carriages. The automobile he characterized as an experiment and fad, which would teach people to ride and use horse-drawn carriages.

If Mr. Black and others interested in the carriage industry, instead of dismissing the subject in this summary manner, will take the trouble to investigate the problem of the self-propelled vehicle in an intelligent manner—which Mr. Black's several erroneous statements show he has not done—they may learn much that will be of value to them, in the not too distant future. The automobile is not a fad or a toy, and anyone of sound reasoning powers will, as soon as he acquires a moderate amount of information, arrive at this conclusion himself. ...

Motor Age, November 14, 1899



Baldwin Steam Carriage

PACKARD'S EXPERIMENTS

Two years ago Ward Packard, of Warren, Ohio, purchased a Winton vehicle. After operating it twelve months he commenced work on a vehicle of his own and spent another year in experiment. He is now using his own carriage and is so well satisfied of its merit that work has been commenced on fifteen for the market. Mr. Packard is a believer in plenty of material, evidently, for it appears that his vehicle is heavier and his motor more powerful than most of those so far produced. He claims, as a result, ability to travel at a good speed over any of the roads within 150 miles of Warren and that they are among the poorest, is common knowledge.

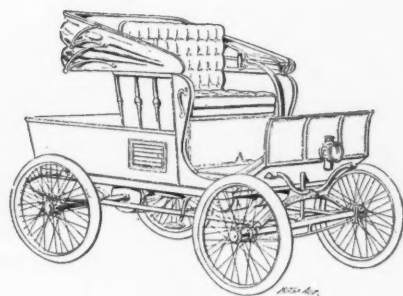
Motor Age, Dec. 21, 1899

DIESEL MOTOR

Rudolph Diesel of Munich, the inventor of the heat engine bearing his name, has announced the result of extended experiments through which he has invented a means of effecting ignition and combustion in internal-combustion engines. ...

The method consists of compressing the combustible charge to a degree below that at which it attains its ignition temperature, such that it becomes ignited by the heat of the compressed charge and thereby effects its combustion. Again, by varying the manner of the introduction and the proportion of the charge introduced, the combustion of the working charge can be correspondingly varied. ...

Motor Age, Dec. 21, 1899



Leach Steam Motor Carriage

WASHINGTON RESTRICTIONS

Washington, Dec. 16—In view of the increasing use of automobiles in this city, the District Commissioners have deemed it wise to place them in the same category with bicycles, so far as speed limitations are concerned. An order to this effect has been issued and hereafter the speed of those vehicles will be restricted to twelve miles an hour within the city limits and fifteen miles an hour outside the city limits.

NOTES OF INTEREST

The coming of automobiles will unquestionably accelerate the impulse given by the bicycle to the making of good roads. ...

It has been demonstrated by statistics that it costs American farmers three times as much to haul a ton as it does the farmers of Europe. But when automobiles on good roads so far reduce the cost of a carriage that their use must be general, then the conditions of their use, namely, roads fit for them to run on, may be expected.

FACING YOUR WAY



HARVEY S. FIRESTONE, Jr. is the new President of the reactivated U S O



CONRAD CONNELL, replacement sales manager for Electric Storage Battery Co.



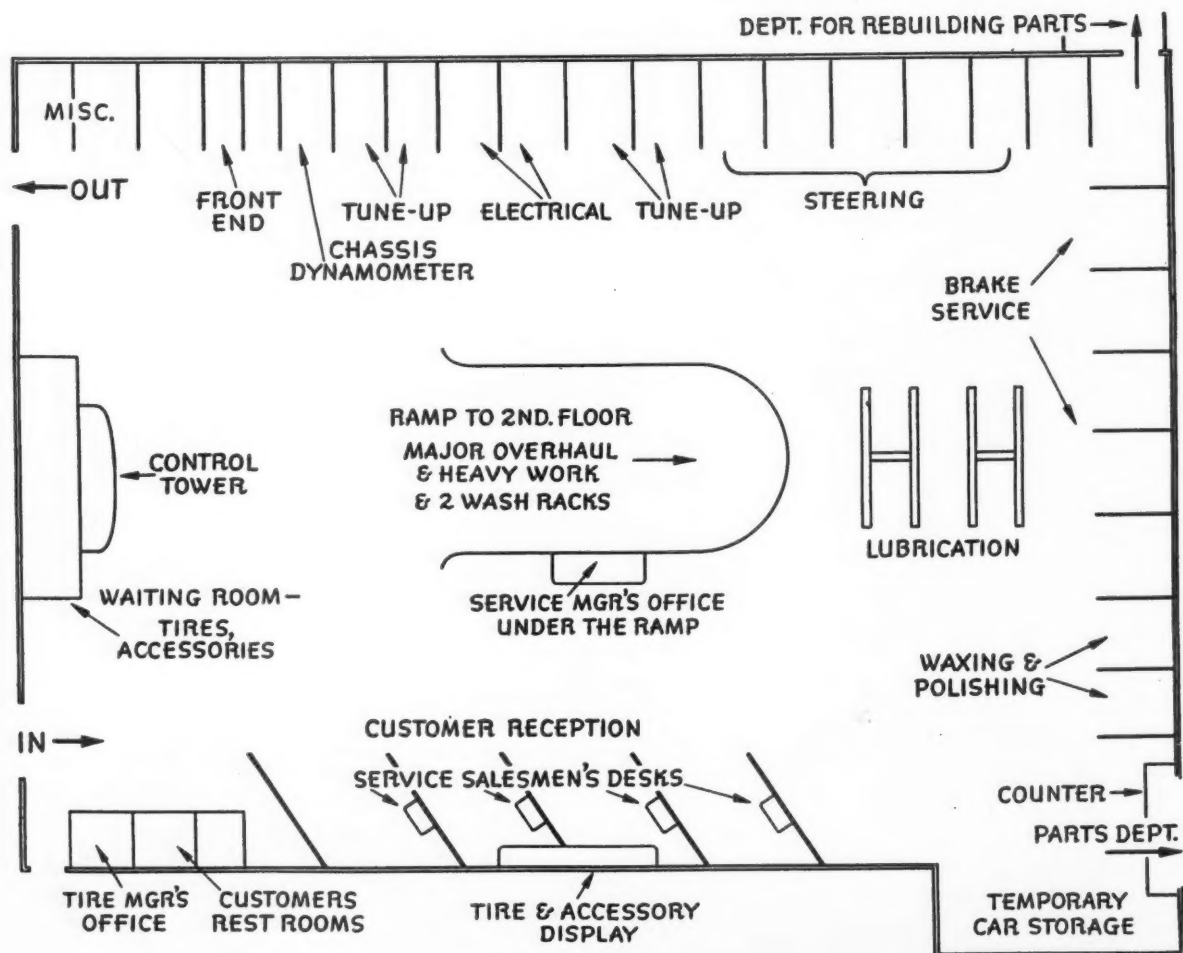
H. R. BUTTS, Sales Manager, Merchandising Division, the Electric Auto-Lite Co.



BILL HOLLAND, top race driver and winner of the 1949 Indianapolis classic

FLOOR PLANS

FOR BETTER SERVICE



Davis Buick Co., a Large City Shop

ROLLING over the 55,000 square feet of floor space at the service department of the Davis Buick Company, Germantown, Pa., are 1350 customers' cars which represent about \$13,500 in labor. In order to make the best use of all floor space, Chuck Willis, the Service Manager, has incorporated a system by which each car has a numbered, code-colored card, and no car is neglected or unaccounted for. This system, coupled with an efficient control tower, keeps the cars rolling through on time with a minimum of confusion.

A special department is maintained in which carburetors,



distributors, generators, and so forth are rebuilt. Also, a "bank" of heads with the valves already ground is kept for convenience and speed on valve jobs.

CLEARING HOUSE

FOR SERVICEMEN'S QUERIES

TROUBLE-SHOOTING IN THIS ISSUE

When you run into a job that has you stumped, write Readers' Clearing House. Besides receiving helpful suggestions, you may have the same problem that is baffling someone else. Among the many problems sent in recently are some tough ones found when:

- Jeep burns valves
- Studebaker motor knock
- Buick miss at high speeds
- Tuning a Chris-Craft
- Ford pulls to right
- Chevrolet truck engine
- Overdrive installed on Plymouth
- Chevrolet clutch chatter
- International burns valves

JACK MONTGOMERY
Technical Editor

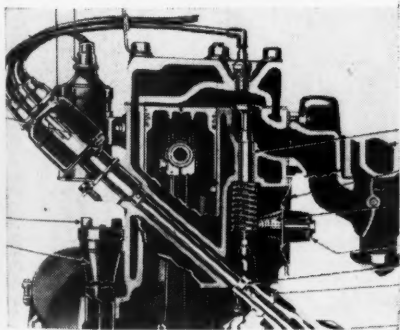


Jeep Has Burnt Three Sets Of Valves, Ready for Fourth

We have a 1948 Jeep with 1600 miles that burns out intake valves. To date, it has had three valve jobs and is ready for the fourth. The valves are installed in proper ports and the heat riser is not stuck. This is the first trouble of this kind that we have encountered and our mechanics are at a loss to what the trouble is. If you can offer any suggestion it will be greatly appreciated. J. A. May, May Motor Company, Gassaway, W. Virginia.

I WOULD suggest tearing this engine apart once more to make the following checks.

Check valve guides for wear and valve spring pressure. Also reseal



the cylinder block before installing new valves. When the job is apart mix a solution of 20% hydrochloric acid and let it sit in the block over-

night as there is the possibility that scale formation may have formed in the block. Always flush the block out well and use a rust inhibitor after using the hydrochloric acid. I would also suggest installing a richer jet in the carburetor as a lean mixture could cause a condition like this. Check the exhaust pipe and muffler for obstructions.

Knock in Studebaker

Champion is Hard to Find

I have a 1947 Studebaker Champion on which number six rod went out. The Studebaker agency rebuilt the motor, putting in all new parts that were needed. I drove it about 4000 miles when a slight knock developed which kept getting worse. It sounded something like a rod bearing. I have torn the motor down twice putting in new rod and main inserts. I checked the camshaft bearings and pistons and piston pins, but the knock is still there. It seems to be worse at high RPM's or pulling but no knock when idling. The knock seemed to be less each time I tore it down but it came back both times after a few thousand miles of driving. I have 44,000 miles on it now and use Number 10 oil but it doesn't use

any. The oil pressure is 40 at 40 miles an hour.

I hope you can give me some information. Archie R. Egelston, Naples, New York.

I WOULD first of all try shorting the spark plugs one at a time to pin the knock down to one cylinder. If the knock cannot be shorted out it would indicate the noise is probably caused by a bent or twisted rod or a loose flywheel.

Before tearing the engine apart I would suggest installing a new fibre camshaft gear as this noise is quite common in Studebaker engines and in most cases a new timing gear will solve the problem.

Buick Misses at Speeds

Over 70 Miles per Hour

I would like to know if you could give me any advice on locating a miss on a 1942-70 Buick. This miss occurs at 70 mph or over.

I've been trying to satisfy the customer for some time by installing new spark plugs, distributor cap, ignition wires, breaker plate and points, grinding the valves, checking the coil and condenser, and checking the distributor shaft and vacuum advance. Can you help

(Continued on page 56)

Clearing House Continued from Page 55

me with a few suggestions? All Service Garage, 5150 W. Pico Blvd., Los Angeles, California.

IT seems to me that you have done a pretty thorough job already in trying to locate this miss. However, I would suggest removing the distributor once more and having it checked on a reliable distributor tester as it occurs to me that the trouble probably lies in the housing. These housings become pitted and worn and are hard to repair satisfactorily. I would also remove the carburetor and give it an overhaul.

Getting Maximum Speed From Chris-Craft Engine

We have a 16-foot Chris-Craft speed boat with a 95 H.P. Chris-Craft motor. The maximum R.P.M. is 3200. We would like to get the motor to turn up 3500 to 3800 R.P.M. if possible. What is the maximum that could be planed off the cylinder head? Any information would be gladly appreciated. Henry H. Griffin, Bustero Motor Co., 714 Court Street, Pekin, Illinois.

I WOULD suggest planing .060 in. off the cylinder head and doing a first class valve job. Also enlarge the intake and exhaust ports. Remove the distributor and have the vacuum and centrifugal advance set right on the ball. You could also have the camshaft ground, which is one of the best methods for increasing the R.P.M.'s.

1941 Ford Pulls to the Right When Brakes Applied

Here's a problem I've run into on a 1941 Ford.

The right front brake tends to drag sooner than the others. The wheel cylinders have been honed and polished and new wheel cylinder kits have been installed. The linings are in A-1 shape, bleeds free on all four wheels and shoes

move free on both front wheels. Rogers Garage, Plover, Wisconsin.

I SUGGEST that you carefully check the anchor adjustments, also the brake drum for out-of-roundness.

Check the king pin and backing plate for looseness. It would be a good idea to install both front brake hoses. It is also important that the steering is adjusted properly and that the tie rod ends and drag links are in good shape.

Chevrolet Truck Engine Used in Passenger Car

I have a 1941 Chevrolet in which I have installed a high torque Chevrolet truck motor with the hopes of increasing its acceleration but it hasn't come up to my expectations.

Since then I have been told that due to the weight of the pistons in this engine it will not stand up under high speed driving in a passenger car. Is this true? Would aluminum pistons increase the ac-

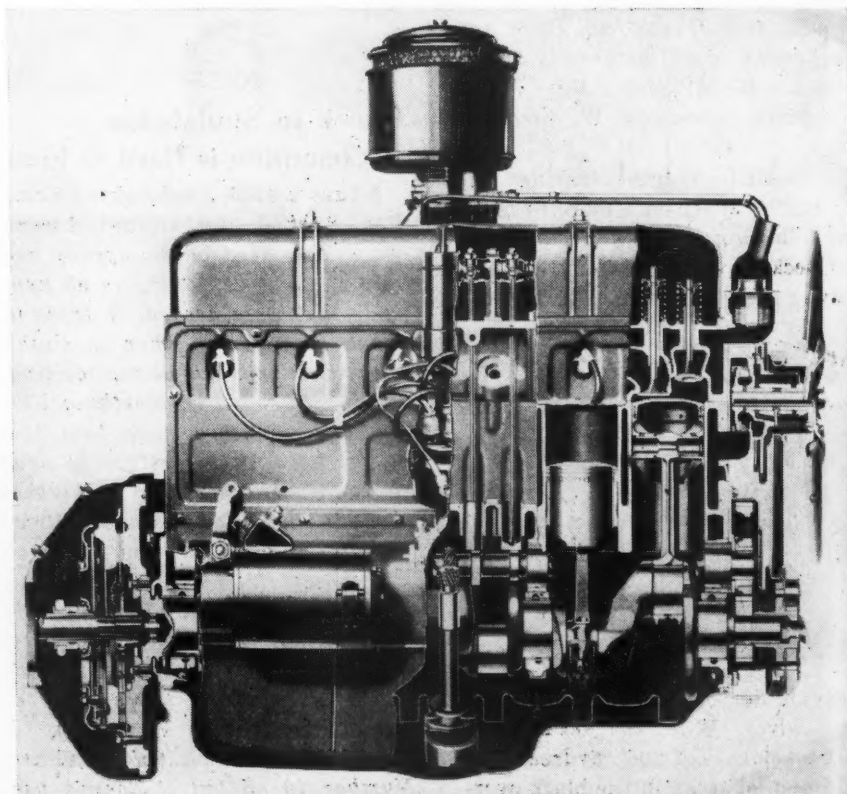
celeration and top speed of this engine? If so, how much? What would be the approximate compression ratio of this engine if .060 in. was planed off the head?

I will appreciate any information you can give me in regard to my questions. William A. Wells, 409 W. Barrett Street, c/o General Delivery, Tyler, Texas.

I NSTALLING a Chevrolet high torque engine in a 1941 chassis should give you a very noticeable improvement in performance, especially on acceleration. I would suggest giving this engine a good tune-up, paying particular attention to the distributor vacuum and centrifugal advance. This is most important for top engine efficiency. I would also suggest installing a richer metering rod in the carburetor.

Installing aluminum pistons would increase the engine efficiency about 2%. Planing .060 off the cylinder head would increase the compression ratio approximately 1 point.

As to the engine standing up under high speed. This engine will probably stand up better than the other due to its heavier construction.



Editor's Note — Use of Resistor in Distributors

To clarify the present ignition setup on Chrysler Corp. cars, it should be noted that 10,000 OHM resistor type Auto-Lite spark plugs are installed as standard equipment on all lines, including Plymouth. Similarly, the new splash-proof distributor with built-in 10,000 OHM resistor in the cap is used across the board on cars built by all divisions. The only exception to this is on the short wheelbase Plymouth models—the —17 chassis, and on short wheelbase Dodge models—the D-29 chassis.

Engines on short wheelbase jobs are fitted with the standard distributor same as on previous models, hence do not have the 10,000 OHM resistor in the cap. On these two lines, therefore, suppression is effected by the resistor spark plugs alone.

Overdrive Installed on Late Model Plymouth

We would like to know if you can give us some information on an overdrive for late model Plymouth passenger cars. We understand that certain models of DeSoto overdrives can be installed satisfactorily. Please send any information you may have on this—Jim Fauver, Rettig Sales & Service, Holgate, Ohio.

THE installation of an overdrive transmission in late model Plymouths can be accomplished in two ways. One, by installing a complete transmission with overdrive from a 1939 Chrysler or DeSoto, or by procuring just the overdrive unit from one of these jobs.

To install the overdrive unit, purchase the following parts: Overdrive control cable, solenoid relay and fuse, indicator light, and a solenoid switch and wiring. Then proceed with the installation as follows:

Remove the transmission from the car. Remove the speedometer drive pinion from the transmission extension. Remove cover detent springs and balls over shifter rails, then remove the cover assembly. Remove the universal joint companion flange and brake drum assembly. Unscrew the gear shifter fork guide rail from the front end of the case. Move the gears to neu-

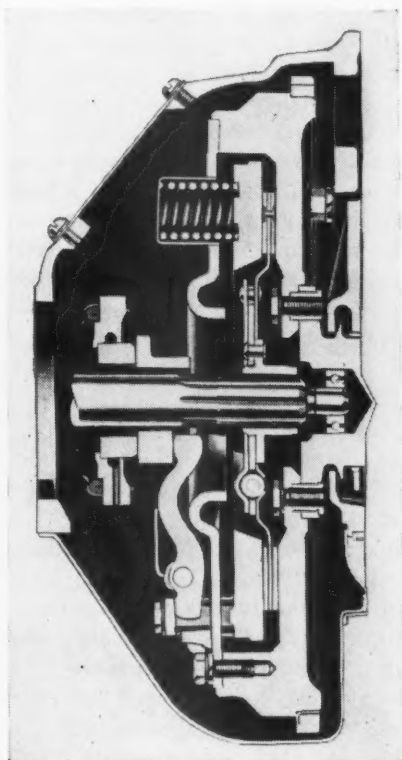
tral position and remove shifter fork screw. Remove the welch plug for the lower shifter rail and remove the rails. Lift out the shifter forks.

Remove the cap screws holding extension housing to transmission case. Remove the housing and mainshaft assembly through rear of case. Now install the gears and synchronizer clutch on the overdrive shaft. Install the overdrive unit on the transmission and reassemble the rest of the units in the reverse order of disassembly.

It will be necessary either to cut and weld the old propeller shaft or to purchase a new one.

Chattering Chevrolet Has Chronic Clutch Trouble

We have a 1935 Chevrolet Master on which we cannot keep the clutch from chattering. A new one will last for only about 500 miles and then starts to chatter. It will vibrate the whole engine and grabs very badly.



New parts have been put in several times as follows: Pressure plates, clutch discs, clutch finger springs, throwout bearings and yoke, all new motor supports and transmission supports, new main bearings in engine, new propeller shaft and bearings, new rear end

and new transmission parts. Before the clutch went bad this car ran for several years.

Any information you can give us would be appreciated. F. W. Walton, Automotive Service, Exeter, California.

I RECOMMEND tearing this job apart once more and examining the facings for oil or grease deposits as there is a possibility of oil leaking past the rear main bearing or grease coming through the main drive gear retainer.

Another important item is the universal ball housing. I would suggest replacing the ball housing and the retainer and fit it up to the transmission until a definite drag is felt on the ball. There are various makes of clutch assemblies supplied for these jobs. In many cases, installing a different make proves very successful.

International Burns Valves Every Three Months

One of our customers has a 1941, K-6 International truck, Model F.A.C. 241 and is having trouble keeping valves from burning out every three months. We have tried several types and makes of valves, also had new seats ground in, new valve keys and new valve springs and the whole motor overhauled. We would appreciate any information that you could furnish us.—Earle D. Brooke, Universal, Penna.

REGARDING your 1941, K-6 International truck that keeps burning valves.

Usually when valves burn time after time as in your case, the trouble is caused by scale formation inside the block. This can be successfully removed by mixing a solution of 20 per cent hydrochloric acid in water and letting it sit in the block overnight. When doing this, always install a good neutralizer to remove the effects of the acid.

I presume you installed new springs, guides, and so forth. You do not mention whether the engine lacks power or overheats. Overheating, of course, would be a major cause for this trouble. Also, if the valve timing is late, you would run into difficulties.

NEW

PRODUCTS

SHOW WINDOW

340

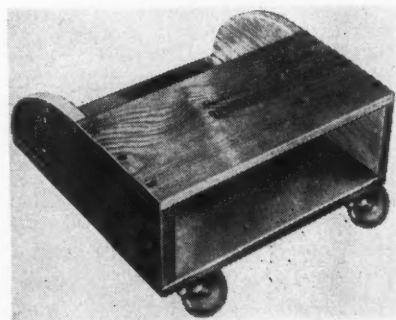


340

The Accurate Parts Mfg. Co., Cleveland, Ohio, is featuring the Accurate transmission jack, made of cast aluminum with a threaded steel spindle. It weighs seven and a half pounds, has a lifting capacity of 500 pounds, and an overall lift of seven inches from a low limit of 13 $\frac{3}{4}$ ".

This jack is equipped with four hard rubber-tired wheels mounted in ball bearing casters. A two-arm handwheel operates against a ball thrust bearing for final alignment. The top cap of the jack is concave in design and is provided with adjustable set screws to hold the transmission in proper balance.

342



343



341



341

Crandall Manufacturing Co., Los Angeles, Calif., is marketing the McClelland combination magnetic camber, caster and king pin gauge. The gauge features a magnetic foot which holds automatically when touched to the machined part of the wheel hub. An adapter is furnished with the tool to simplify attachment of the gauge to the hex spindle nut for checking caster and king pin functions.

342

The Hulbert Manufacturing Co., Ashtabula, Ohio, announces "Cynthia," the Serviseat. This seat is designed so that it can go any place that a man on a creeper can go, making a convenient

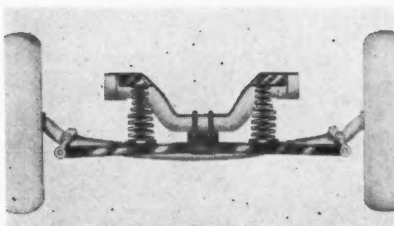
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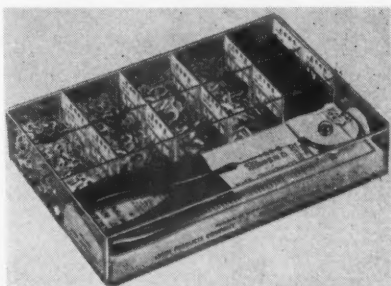
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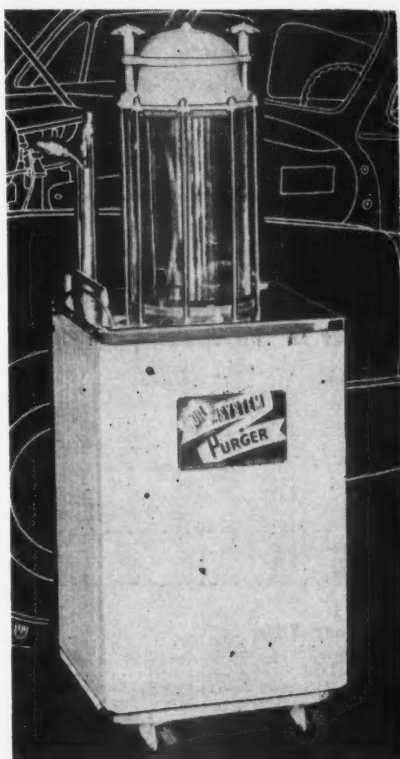
346



347



348



345

The Electric Storage Battery Co., Phila., Pa., announces the Exide Check-Charge, a battery-testing instrument. The Exide Check-Charge can be held either in the service man's hand or hung on the lifted hood while the test is being made. If a recharge is needed, the hand on the dial will register "Recharge"; if not, it will point to "Safe," so that the customer can see for himself the results of the test.

A second set of graduations on the dial enable the Check-Charge to be used for testing batteries in stock.

346

The Automotive Division of Federal Identification Co., Oklahoma City, Oklahoma, is marketing a newly-developed front coil spring assembly for Fords and Mercurys previous to 1949 models. The manufacturer states that this unit, which replaces the leaf spring, is designed to conform to the specifications of standard Ford parts, and can be installed in 1½ hours or less.

347

Lynn Products Co., Chicago, Ill., announces a new solderless wire terminal kit. Called the Lynn Lightning Solderless Terminal Service Kit, this set contains an assortment of the most popular solderless wire terminals and insulation tubing plus the Lynn crimping and cutting tool. The complete assortment of terminals, tubing and tools are encased in a transparent plastic box.

348

The Choldun Manufacturing Corp., New Haven, Conn., announces its oil system purger. This unit is designed to save time on making oil changes, and to increase the sales of oil. The wand of the oil system purger is inserted into the dipstick hole, and the old oil drawn out into the Pyrex cylinder where the car-owner can examine it.

It is stated that the oil change can be made in two minutes.

(Continued on page 60)

FOR FURTHER INFORMATION
USE COUPON ON PAGE 60

under-the-car tool tray, and can be used as a non-tipping seat while working on fenders, brakes, etc. The manufacturer states that the seat weighs 20 pounds, and has a tool compartment 16 inches square.

343

The Electric Auto-Lite Co., Toledo, Ohio, announces production of a new automotive fuel pump. This unit, which is of the mechanical type, has been adopted as original equipment by a leading automobile manufacturer.

344

The R. M. Hollingshead Corp., Camden, N. J., is marketing Met-L-it, a new metal alloy in moldable form for making cold metal repairs. Companion products are Met-L-it Fiber and Met-L-it Solvent.

Met-L-it is used to fill holes, dents and depressions in auto bodies, to repair cracked blocks, to fix leaks in gas tanks and radiators and for many other metal repair jobs.

Large holes, especially in rusted out body sections, are first covered with Met-L-it Fiber. It is then coated with Met-L-it for a hard metal finish.

The third new item is Met-L-it Solvent which is used both in applying the Fiber and in thinning Met-L-it in order to brush or spray it.

New Products Continued from Page 59

349

The Raybestos Division, Bridgeport, Conn., has announced a new Brake Service Deal to enable dealers to display the product in garages and service stations.



This No. 19 Brake Service Deal consists of 19 sets of Raybestos that will service over 90% of the popular passenger cars, and can be supplied with or without a Raybestos No. 865 Riveter and No. 501 Wheel Puller Set. When PG or Wire Molded sets are specified, 3,000 rivets are included.

350

Monroe Auto Equipment Company of Monroe, Michigan, offers its new heavy duty shock absorber. The pressure chamber of 1 3/8 in. is said to provide approximately double the cushioning capacity of the standard one-inch shock absorber unit.

351

Willard Storage Battery Co., Cleveland, Ohio, is in production of a new fast charger. The new model is priced between the Willard Portable Charger and the Willard DeLuxe Fast Charger Tester.

This unit contains all features of the deluxe fast charger except for the before and after charge tests and the voltage regulator test.



The manufacturer states that the charging unit is identical with that in the deluxe model. Assembled in a heavy-gauge steel cabinet, the new Willard equipment provides thermostatic con-

trol and is capable of charging at a rate of 100 amperes. Slow charging facilities for from one to six 6-volt batteries have been incorporated in the new charger.

352

The Independent Pneumatic Tool Co., Aurora, Ill., announces a new Thor pneumatic body and fender hammer. The new hammer has six outstanding features, Ball Swivel Action on both upper and lower dollies, push button "On-Off" air control that works like an electric switch, independent needle valve, with knurled nut control that regulates speed and power of the hammer from dead stop to full power, sensitive ratchet control that guides hammer to clamping position, positive ratchet lock which is set or released by a flip of the finger and holds the hammer locked in position and a rigid yoke locking device which permits quick changes.

353

The American Eagle Spark Plug Company of Detroit has developed a spark plug of new design. A nichrome radial cathode delivers a 360 degree radius of fire in the form of a circle or halo.

The American Eagle Spark Plug features a factory pre-set gap



which is said to be constant in all working conditions. The manufacturer states that the gap-setting is permanent for all makes and models of engines and does not expand under heat and compression.

(Continued on page 128)

MAIL THIS COUPON:

For further information on any of the products mentioned in Motor Age write the code number of the product in the space provided below. Don't forget your name and address.

Frank P. Tighe
MOTOR AGE
Chestnut & 56th Sts., Philadelphia 39, Pa.

Code number of New Products

Your Name Your Title

Your Company

Address (STREET & NO.) (CITY) (ZONE) (STATE)

New Car Registrations by Makes by States*

STATE AND MONTH	Buick	Cadillac	Chevrolet	Chrysler	Crosley	De Soto	Dodge	Ford	Frazer	Hudson	Kaiser	Lincoln	Mercury	Nash	Oldsmobile	Packard	Plymouth	Pontiac	Studebaker	Willlys	All Others	Total
Alabama..... April	284	52	1169	72	10	52	115	1057	19	128	61	69	352	129	172	68	589	254	172	18	5	4,827
4 Mos.	904	193	3339	331	61	250	566	3828	85	513	175	218	949	427	653	238	1649	781	595	100	20	15,855
Arizona..... April	116	46	251	37	4	42	70	483	6	100	12	15	63	84	83	39	156	85	123	12	4	1,841
4 Mos.	392	122	635	125	41	113	241	1201	20	331	43	51	221	190	186	124	511	330	403	36	11	5,327
Arkansas..... April	128	33	709	56	3	34	69	686	26	105	79	23	78	85	108	54	329	335	108	35	18	2,899
4 Mos.	585	104	1933	244	13	198	380	2164	129	414	253	63	263	277	395	210	1084	481	340	105	64	9,889
California..... April	2577	811	7288	1087	77	904	1933	6741	73	1130	245	329	1603	904	1906	577	3437	2705	2325	160	97	36,909
4 Mos.	8137	2122	16149	2832	307	2645	5127	16210	288	3832	656	963	4088	2395	5446	1823	9883	7453	5870	413	324	98,783
Colorado..... April	289	56	733	115	7	47	125	611	14	231	47	45	229	110	168	89	408	208	102	14	3	3,852
4 Mos.	1038	210	2045	615	33	229	552	2273	74	944	139	172	589	364	522	333	1293	646	369	57	8	12,405
Connecticut..... April	485	151	918	147	14	135	206	797	9	159	56	62	210	183	329	144	639	434	262	30	38	5,364
4 Mos.	1825	582	2532	483	36	433	886	2373	38	534	121	183	599	622	1113	425	1783	1345	734	105	108	16,842
Delaware..... April	67	15	169	14	5	10	48	190	6	29	22	9	55	12	68	31	148	61	68	9	2	1,035
4 Mos.	396	70	557	64	14	60	198	758	21	162	47	50	154	83	282	85	346	224	213	22	8	3,868
Dist. of Col..... April	202	56	806	88	8	46	63	394	8	113	24	14	124	74	161	62	403	213	91	11	16	2,777
4 Mos.	741	259	1482	262	13	188	509	1488	20	350	50	79	309	226	568	195	977	827	308	29	41	8,640
Florida..... April	445	163	1277	180	29	141	339	1580	28	267	45	171	546	206	275	155	627	321	247	57	34	7,163
4 Mos.	1259	481	2581	486	128	366	943	3937	100	754	171	486	1191	487	739	461	1684	716	614	193	78	17,825
Georgia..... April	264	89	853	107	6	43	111	856	14	128	51	60	260	107	201	74	484	234	148	26	4	4,090
4 Mos.	1627	317	3375	553	79	400	1095	5042	188	814	438	379	1353	529	885	405	2056	1501	796	156	48	22,034
Idaho..... April	96	21	201	32	1	27	64	231	16	57	17	11	44	59	26	93	49	95	16	2	1,187	
4 Mos.	385	71	635	151	3	107	238	796	72	250	75	58	171	162	196	109	439	251	295	41	10	4,525
Illinois..... April	1714	469	3831	650	66	521	912	3529	147	882	255	236	761	674	1175	639	3247	1363	779	111	308	22,269
4 Mos.	6013	2177	13722	2517	343	2241	5147	16373	805	3791	1186	1124	3171	2632	4414	2405	9335	5016	3006	424	1290	89,338
Indiana..... April	659	166	1927	287	40	166	343	1555	53	369	169	89	213	347	442	214	1433	610	656	44	19	9,871
4 Mos.	2529	548	5360	800	169	636	1435	5801	239	1491	459	272	919	1007	1767	787	3082	1698	1938	199	57	31,191
Iowa..... April	643	90	2228	244	34	119	280	2011	90	316	243	63	502	315	380	201	1132	486	339	30	60	9,796
4 Mos.	1965	314	5494	722	96	423	1064	6888	283	1050	597	182	1219	796	1156	577	3009	1271	962	91	160	28,101
Kansas..... April	487	74	1431	231	42	121	238	1334	64	348	149	77	375	229	340	169	840	407	270	26	25	7,277
4 Mos.	1335	217	3390	573	143	381	833	3798	196	818	318	234	820	597	908	428	1775	949	624	52	53	18,442
Kentucky..... April	403	55	1151	116	15	65	158	1045	30	158	74	32	200	179	248	125	840	275	187	42	13	5,411
4 Mos.	1282	186	3203	430	64	256	681	3561	113	575	211	130	541	443	858	379	1887	789	571	166	44	18,368
Louisiana..... April	384	72	1135	81	14	34	101	1163	34	209	161	55	271	154	212	108	520	265	252	54	11	5,270
4 Mos.	1181	241	3221	351	69	208	600	4159	119	684	349	196	774	472	677	349	1540	855	718	148	41	16,952
Maine..... April	169	30	389	50	10	38	72	358	15	80	58	17	89	95	144	36	230	136	88	21	6	2,129
4 Mos.	572	133	1270	171	31	154	416	1178	43	284	120	58	226	240	416	127	817	504	259	59	14	7,092
Maryland..... April	393	94	1447	169	21	111	185	905	22	222	100	47	230	177	310	112	784	314	234	34	10	5,921
4 Mos.	1553	325	3825	524	71	441	848	3440	78	885	219	192	623	591	1089	463	2400	1028	827	116	38	19,578
Massachusetts..... April	1060	246	1508	306	39	247	406	1710	25	242	122	111	460	397	906	255	1456	710	468	80	41	10,795
4 Mos.	3967	851	5087	1130	141	1038	2113	6028	95	969	304	362	1350	1379	3090	830	4242	2668	1452	218	137	37,451
Michigan..... April	2259	514	6475	670	34	615	998	5513	117	655	575	185	1228	771	1821	422	3184	2399	642	87	53	29,217
4 Mos.	9066	2309	18644	1963	158	1895	3625	21911	409	2611	1013	648	3465	2532	6233	1430	8766	6658	2037	312	140	95,825
Minnesota..... April	544	104	1836	267	12	103	214	1335	56	273	221	44	332	358	329	197	968	379	348	53	6	7,979
4 Mos.	1873	412	5044	827	28	418	1108	4918	236	922	502	164	816	993	1263	641	3147	1256	1188	130	22	25,906
Mississippi..... April	281	47	786	65	14	23	79	706	16	102	52	37	168	139	127	63	387	188	120	21	16	3,377
4 Mos.	873	170	2332	306	54	174	398	2630	67	441	153	152	507	377	437	220	1305	682	404	104	45	11,801
Missouri..... April	560	107	2103	250	27	168	276	1769	43	294	104	69	361	289	431	222	1078	424	250	45	35	8,905
4 Mos.	2181	490	6514	797	122	696	1462	6530	144	898	324	256	1024	856	1499	630	3102	1504	845	138	82	30,094
Montana..... April	160	31	478	60	6	33	103	375	14	106	39	23	109	93	125	64	218	130	113	11	3	2,294
4 Mos.	491	110	1200	209	12	133	412	1337	83	412	118	89	315	264	336	198	714	341	366	44	13	7,197
Nebraska..... April	282	43	912	139	4	39	115	1048	34	108	97	43	235	110	156	85	562	301	154	22	16	4,505
4 Mos.	1036	163	2682	471	31	183	521	3593	124	367	232	126	539	311	560	249	1760	795	525	65	38	14,391
Nevada..... April	37	16	67	17	.....	12	22	76	4	13	.....	14	45	17	21	8	42	26	19	2	.....	458
4 Mos.	123	43	217	71	.....	48	55	259	12	65	7	41	102	39	83	40	175	109	101	5	1	1,596
New Hampshire..... April	48	10	124	16	1	13	60	114	2	22	4	2	26	24	34	14	104	40	24	4	.....	687
4 Mos.	330	64	638	114	11	97	340	715	12	118	33	25	141	139	208	80	562	235	139	25	10	4,036
New Jersey..... April	882	275	1977	389	45	231	425	1446	36	436	117	109	477	336	643	305	1796	937	483	117	46	11,508
4 Mos.	4701	1162	6022	1552	228	1132	2581	6212	134	1804	304	459	1575	1304	2641	1170	4533	3693	1685	329	154	43,365
New Mexico..... April	89	17	242	43	9	10	47	248	6	51	19	27	81	53	65	33	147	61	43	8	.....	1,299
4 Mos.	353	63	627	145	29	65	199	800	50	178	51	100	180	152	179	96	382	186	141	23	3	4,012
New York..... April	3596	1226	6213	1156	105	1017	1909	5500	161	1284	649	352	1680	1457	2443	1061	4658	3103	1587	301	126	39,584
4 Mos.	12421	3717	16196	3619	325	3659	7374	17547	512	3955	1262	1093	4068	3880	6058	3279	11969	8840	4242	804	394	117,214
North Carolina..... April	449	93	1527	104	12	77	165	1801	39	168	92	101	383	173	307	128	842	430	321	85	15	7,112
4 Mos.	1701	360	4495	464	43	381	921	5773	153	756	251	346	1201	532	1078	591	2448	1392	979	229	84	24,178
North Dakota..... April	67	14</																				



Woman Driver Ahead



The Sociable Driver—He likes to get acquainted with his fellow motorists while he waits for the green light.

Drivers We Have Met They pack the

kinds of cars—and when their personalities clash, you often find a body and

The Contortionist—"No, I can light it myself!" he tells the person sitting next to him. Famous last words! ! !



The Drunken Driver—This guy's no joke. The more he drinks, the more cocky he gets, and the less control he has.





The Impatient Driver—If you don't pull away from the light like a jackrabbit, he'll blow his horn instantly.



The Belligerent Driver—Mighty rough when inside the car, but see him wither when he's face to face in the open.



The Bottleneck—After you fire several pistol shots he may pull over to let you pass—but he feels imposed upon.

The Courteous Driver—Always apologizes after he's made an unexpected turn in front of you without signaling.

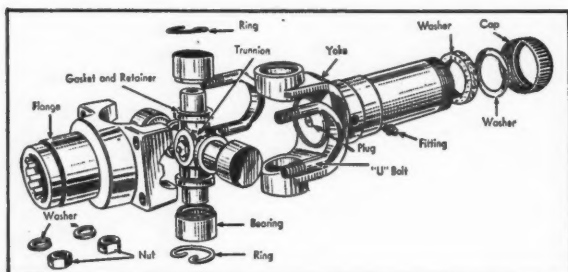


The Sunday Driver—It has never occurred to him that some people want to get some place at over twenty miles per hour.



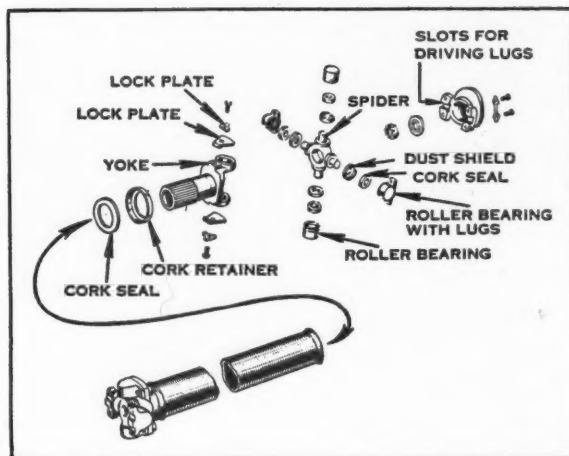
the highways by the millions in all

nd fender repair job on your hands



Above. Exploded view of Spicer U-bolt and lock ring combination.

Right. Exploded view of Mechanics universal joint and shaft.



Maintenance on the Universal Joint

The universal and slip joint should be cleaned, examined and lubricated at regular intervals

by Arthur H. Nellen, Jr.
Assistant Editor

UNIVERSAL joints should be serviced every ten to twenty thousand miles. Careful cleaning, inspection, and lubrication of this part will contribute to its increased life expectancy.

Before removing the propeller shaft, it is advisable to check for excessive play in the universal joint. This is best done by getting under the car and moving the shaft by hand, watching for free play between the propeller shaft and the transmission shaft or pinion shaft. This play should not be noticeable. One of the primary causes of worn joints is lack of lubrication, and the result is generally a vibration at certain criti-

cal speeds which becomes worse with time and eventually becomes very noisy. Worn transmission shaft or pinion shaft bearings will sometimes give the symptoms similar to those of a worn universal. Excessive looseness in either of these bearings will cause noise and vibration.

There are four common types of universal joint construction found on passenger cars—the double flange yoke type, the double end yoke type with U-bolts, the double end yoke type with wing-type bearings, and the double end yoke type with snap-rings. In each of these except for the first, where the entire universal joint is separated from the companion flange, the joint is separated from the end yoke by removing the U-bolts, bearing cap screws, or snap ring and bearings.

Once the propeller shaft has been removed, the universal can be disassembled by removing the snap rings, U-bolts, or cap screws (according to the construction) and removing the bearing assemblies and journal cross. To assure proper slip-joint alignment when reassembling, locate the arrows on the spline shaft, or scratch in new ones before disassembling.

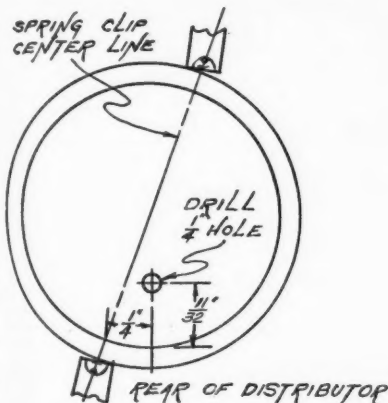
After the joint has been disassembled, thoroughly clean it in a suitable cleaning solution and blow out with air. Since grease will, after extended periods of time, harden in certain spots, it is advisable to use a fine wire to probe the unloosened grease from the parts.

It is not necessary to disassemble the needle bearings in order to clean them thoroughly. However, the rollers should be closely examined for flattened or chipped surfaces. Check for loose-

(Continued on page 112)

Suggestions from the Factories

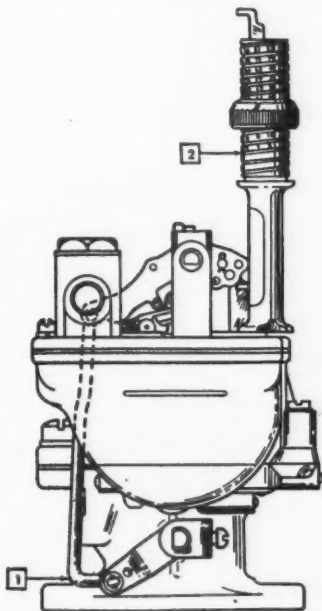
Several instances have been reported of condensation occurring within the distributor housings on



4. Assemble and reinstall.

To improve the acceleration performance on the 1949 Nash "600" series with the WA-1-694S carburetor, the accelerator pump stroke adjustment has now been revised

Place the base of the gage on the ridged portion of the bowl cover so that the indicator ear of the pump gage rests on the top surface of the connector link, where it extends through the plunger shaft. Hold the gage vertical. The difference between the number shown by the index mark



Adjustment should be made by bending the throttle connector rod at the lower angle as shown.

5. Replace trim and hardware.

Current Engine and Tune-up Specifications

ENGINE			TUNE-UP DATA										STEERING														
Wheelbase (In.)	No. of Cylinders, Bore and Stroke	Taxable Hp.	Piston Displacement (Cu. In.)	Maximum Brake Hp. at Specified R.P.M. (with Bare Engine)	Compression Ratio	Spark Plug Make and Type	Rings				VALVES				IGNITION				Caster (Deg.)	Camber (Deg.)	Toe-In (In.)	King Pin Inclination (Deg.)					
							No. and Width	No. and Width	Seat Angle	Inlet	Exhaust	Stem Diameter (In.)	Inlet	Exhaust	Operating Tappet Clearance	Inlet Valve Timing	Deg. Inlet Opens Before or After TC	Timing Marks Located					Breaker Point Gap	Cam Angle (Deg.)	Spark Plug Gap	Spark Occurs	Timing Marks Located
Buick.....Eight, 50	121	8-3 1/4 x 4 1/4	30.6	248.1	115-3600	6.6	AC-48	2-3/8	2-3/8	45	.372	.015H	.015H	.015	13BT	None	.015	.025	4BT	Fly	A	5 1/2	13	+ 1/4 to + 1 1/2	+ 3/8 to - 5/8	1/8 to 1/8	4 1/4 to 4 1/4
Buick.....Eight, 70	126	8-3 1/4 x 4 1/4	37.8	320.2	160-3600	6.9	AC-48	2-3/8	2-3/8	45	.372	.015H	.015H	.015	14BT	None	.015	.025	5BT	Fly	A	5 1/2	16 3/4	+ 1/4 to + 1 1/2	+ 3/8 to - 5/8	1/8 to 1/8	4 1/4 to 4 1/4
Cadillac.....61, 62, 60	(a)	8-3 1/4 x 3 3/4	46.5	331.0	160-3600	7.5	AC-48	2-1 1/8	2-1 1/8	44	.343	.001	.001	.001	19BT	None	.015	.035	5BT	VD	A	5	18	- 1/2 to + 1 1/2	- 3/8 to + 3/8	5/16 to 5/16	5 5/16 to 5 5/16
Cadillac.....Eight, C-47	136 1/2	8-3 1/4 x 3 3/4	46.5	331.0	160-3600	7.5	AC-48	2-1 1/8	2-1 1/8	44	.343	.001	.001	.001	19BT	None	.015	.035	5BT	VD	A	5	18	- 1/2 to + 1 1/2	- 3/8 to + 3/8	5/16 to 5/16	5 5/16 to 5 5/16
Chevrolet.....Six, GJ-GK	116	6-3 1/4 x 3 3/4	29.4	216.5	90-3300	6.6	AC-46-5	2-1 1/8	2-1 1/8	30	.341	.006H	.013H	.006H	18T	Fly	.021	.036	5BT	Fly	A	5	16	1/2 to 1/2	0 to 1/2	4 to 30"	4 to 30"
Chrysler.....Six, C-45	125 1/2	6-3 1/4 x 4 1/4	28.3	250.6	116-3600	7.0	AL-AR-5	2-3/8	2-3/8	45	.341	.008H	.010H	.014	12BT	VD	.020	.038	4AT	VD	A	5	17	- 1 to - 3	0 to + 3/8	0 to 1/8	4 1/4 to 6
Chrysler.....Eight, C-46	131 1/2	8-3 1/4 x 4 1/4	33.8	323.5	135-3400	7.2	AL-AR-5	2-3/8	2-3/8	45	.341	.008H	.010H	.014	12BT	VD	.018	.038	2AT	VD	A	5	21	- 1 to - 3	0 to + 3/8	0 to 1/8	4 1/4 to 6
Chrysler.....Eight, C-47	145 1/2	8-3 1/4 x 4 1/4	33.8	323.5	135-3400	6.7	AL-AR-5	2-3/8	2-3/8	45	.625	.008H	.010H	.011	12BT	VD	.018	.038	2AT	VD	A	5	21	- 1 to - 3	0 to + 3/8	0 to 1/8	4 1/4 to 6
Crosley.....Four, CD-49	80	4-2 1/2 x 2 1/2	10.0	44.0	26.5-5400*	7.8	AL-AN7E	2-1 1/8	2-1 1/8	45	.313	.004C	.006C	.009	5BT	.....	.020	.046	8BT	Fly	B	2	4	7 1/2	2	6 1/2	6 1/2
De Soto.....Six, S-13	125 1/2	6-3 1/4 x 4 1/4	28.3	236.6	112-3600	7.0	AL-AR-5	2-3/8	2-3/8	45	.341	.008H	.010H	.014	12BT	VD	.020	.038	4AT	VD	A	5	17	- 1 to - 3	0 to + 3/8	0 to 1/8	4 1/4 to 6
Dodge.....Six, D-29, D-30	(a)	6-3 1/4 x 4 1/4	25.3	230.2	103-3600	7.0	AL-AR-5	2-3/8	2-3/8	45	.340	.008H	.010H	.014	8BT	VD	.020	.038	2AT	VD	A	5	15	- 1 to + 1	0 to + 3/8	0 to 1/8	4 1/4 to 6
Ford.....Six, 98HA	114	6-3 3/4 x 4	26.1	225.8	95-3300	6.8	CH-H10	2-093	2-093	45	.341	.010C	.013C	.015	11BT	VD	.025	.036	TC	VD	A	4	17.3	+ 1/4 to - 3/4	- 1/4 to + 3/4	1/8 to 1/8	5 1/2 to 5 1/2
Ford.....Eight, 98BA	114	8-3 1/4 x 3 3/4	32.5	239.4	100-3600	6.8	CH-H10	2-091	2-091	45	.341	.011	.015	.015	11C	CP	.015	.030	2BT	.....	.....	.....	22	+ 1/4 to - 3/4	- 1/4 to + 3/4	1/8 to 1/8	5 1/2 to 5 1/2
Ford.....Six, 49S-49E	123 1/2	6-3 1/4 x 4 1/4	26.3	226.2	112-3600	7.3	AL-A5	2-093	2-093	45	.341	.014C	.014C	.014	10BT	VD	.020	.038	4BT	VD	A	5	13 1/2	0 to = 1	0 to - 3/4	0 to 1/8	4 1/4 to 5 1/4
Hudson.....Six, 491-492	123 1/2	6-3 1/4 x 4 1/4	30.4	262.0	121-4000	6.5	CH-J7	2-078	2-078	45	.341	.010H	.012H	.....	7 1/8 BT	Fly	.020	.032	TC	Fly	A	7	18	0 = 1/4	1/2 to 1/2	3/8 to 3/8	3 3/8 to 3 3/8
Hudson.....Eight, 493-494	123 1/2	8-3 3/4 x 4 1/4	28.8	254.0	128-4200	6.5	CH-H10	2-093	2-093	45	.341	.006H	.008H	.....	10 3/8 BT	Fly	.027	.032	TC	Fly	A	7	18	0 = 1/4	1/2 to 1/2	3/8 to 3/8	3 3/8 to 3 3/8
Kaiser.....Six, 491-492	123 1/2	6-3 1/4 x 4 1/4	26.3	226.2	(d)-3600	7.3	AL-A5	2-093	2-093	45	.341	.014C	.014C	.014	10BT	VD	.020	.038	4BT	VD	A	5	13 1/2	0 to = 1	0 to - 3/4	0 to 1/8	4 1/4 to 5 1/4
Lincoln.....9EL-9EH	(b)	8-3 1/4 x 4 1/4	39.2	336.7	152-3600	7.0	CH-H10	2-093	2-093	45	.341	.014C	.014C	.014	10BT	VD	.016	.038	4BT	VD	A	6	34 1/2	0 to = 1/2	0 to + 3/8	0 to 1/8	5 to 5
Mercury.....9CM	118	8-3 1/4 x 4	32.5	255.4	110-3600	6.8	CH-H10	2-093	2-093	45	.341	.011	.015	.015	10BT	CP	.015	.030	2BT	.....	.....	.....	22 1/2	- 3/4 to + 1 1/2	0 to + 3/8	0 to 1/8	5 to 5
Nash.....600	112	6-3 1/4 x 3 3/4	23.4	172.6	82-3600	7.0	AL-A5	2-093	2-093	45	.341	.015H	.015H	.019	8BT	None	.020	.030	TC	VD	A	5	14	0 to + 1/2	- 1/4 to + 1/4	1/8 to 1/8	8 1/2 to 8 1/2
Nash.....Amb.	121	8-3 1/4 x 4 1/4	27.3	234.8	112-3600	7.0	AL-A5	2-093	2-093	45	.372	.015	.015	.022	4 1/8 BT	None	.020	.035	TC	VD	A	6	17	0 to + 1/2	- 1/4 to + 1/4	1/8 to 1/8	8 1/2 to 8 1/2
Oldsmobile.....76	119 1/2	8-3 1/4 x 4 1/4	29.9	257.1	105-3400	6.5	AC-45	2-3/8	2-3/8	45	.342	.009H	.011H	.012	5BT	None	.020	.040	TC	Fly	A	5	19 1/2	0 to - 3/4	- 1/4 to + 3/4	1/8 to 1/8	4 29/47 to 4 29/47
Oldsmobile.....88	119 1/2	8-3 1/4 x 4 1/4	45.0	303.7	135-3600	7.2	AC-44	2-1 1/8	2-1 1/8	45	.342	.009H	.011H	.012	5BT	None	.015	.023	2 1/8 BT	Fly	A	5	21 1/2	0 to - 3/4	- 1/4 to + 3/4	1/8 to 1/8	4 29/47 to 4 29/47
Oldsmobile.....Futuramic 98	125	8-3 1/4 x 4 1/4	45.0	303.7	135-3600	7.2	AC-44	2-1 1/8	2-1 1/8	45	.342	.009H	.011H	.012	5BT	None	.015	.023	2 1/8 BT	VD	A	5	21 1/2	0 to - 3/4	- 1/4 to + 3/4	1/8 to 1/8	4 29/47 to 4 29/47
Packard.....Eight	120	8-3 1/4 x 3 3/4	39.2	288.0	135-3600	7.0	(k)	2-093	2-093	45	.341	.007H	.010H	.012	15BT	.....	.015	.028	6BT	.....	.....	.....	18	- 1 to - 1 1/2	0 = 1/8	0 = 1/8	5 500 to 5 500
Packard.....Super Eight	120	8-3 1/4 x 4 1/4	39.2	327.0	150-3600	7.0	(k)	2-093	2-093	45	.341	.007H	.010H	.012	15BT	.....	.015	.028	6BT	.....	.....	.....	18	- 1 to - 1 1/2	0 = 1/8	0 = 1/8	5 500 to 5 500
Packard.....Custom Eight	127	8-3 1/4 x 4 1/4	39.2	356.0	160-3600	7.0	(k)	2-093	2-093	45	.341	.007H	.010H	.012	15BT	.....	.015	.028	6BT	.....	.....	.....	19	- 2 to - 1 1/2	0 = 1/8	0 = 1/8	5 500 to 5 500
Plymouth.....Six, P17, P18	(c)	6-3 1/4 x 4 1/4	25.3	217.8	97-3600	7.0	AL-AR5	2-3/8	2-3/8	45	.340	.008H	.010H	.014	12BT	VD	.020	.038	2AT	VD	A	5	15	- 1 to + 1	0 to + 3/8	0 to 1/8	4 1/4 to 6
Pontiac.....Six, 25	120	6-3 1/4 x 4	30.4	239.2	92-3400	6.5	AC-45	2-3/8	2-3/8	45	.312	.012H	.012H	.012	5BT	CC	.020	.037	4BT	Fly	A	5	18 1/2	- 3/4 to + 1	0 to 1/8	0 to 1/8	5 to 5
Pontiac.....Eight, 27	120	8-3 1/4 x 3 3/4	33.8	248.5	106-3600	6.5	AC-45	2-3/8	2-3/8	45	.312	.012H	.012H	.012	5BT	CC	.020	.037	4BT	Fly	A	5	20 1/2	- 3/4 to + 1	0 to 1/8	0 to 1/8	5 to 5
Studebaker.....Six, 8G	112	6-3/4 x 4	21.6	169.6	80-4000	6.5	CH-J7	2-093	2-093	45	.312	.016C	.016C	.020	15BT	FVD	.020	.038	2BT	FVD	A	5	10	+ 1 1/2	1/2 to 1/2	1/2 to 1/2	5 1/2 to 5 1/2
Studebaker.....Six, 16A	119	6-3 1/4 x 4 1/4	26.3	226.2	94-3600	6.5	CH-J7	2-093	2-093	45	.343	.016C	.016C	.020	15BT	FVD	.020	.038	2BT	FVD	A	6	13	- 2 to - 3	1/2 to 1/2	1/2 to 1/2	5 1/2 to 5 1/2
Willis.....Six, 683	104	6-3/4 x 3 1/2	21.6	148.5	72-4000	6.4	AL-A7-F	2-3/8	2-3/8	45	.340	.014	.014	.....	5BT	.....	.020	.038	TC	.....	.....	.....	12	1	1/2 to 1/2	1/2 to 1/2	5 to 5

ABBREVIATIONS

- With Standard Accessories
- † Plus or Minus 1/2°
- Depress in Camshaft Gear
- Do not recommend using a dwell meter for checking point opening

- (a) Models 61 and 62—126 in., Model 60—133 in.
 (b) 121 in. for 9EL model; 125 in. for Cosmopolitan model
 (c) Upper Ring 1/8 in., Lower Ring 1/16 in.
 (d) Model 491—100; Model 492—112.

- (f) At 1000 Rpm.
 (g) Top Ring 1/8 in., Middle Ring 1/4 in.
 (h) Auto-Lite P4 or AC104 or Champion Y4A
 (m) AC44 or Auto-Lite A5
 (r) Upper Ring; Lower Ring
 (s) D26=115 1/2; D30=123 1/2

- (0) P17=111 1/2; P18=118 1/2
 A—Rods removed from above
 AA—Automatic Adjustment
 AC—AC Spark Plug Div.
 AL—The Electric Auto-Lite Corp.
 AT—After Top Center

- BT—Before Top Center
 C—Cold
 CC—Crankshaft and Camshaft Sprockets
 CH—Champion Spark Plug Co.
 CP—Crankshaft Pulley
 DH—Distributor Housing

- Fly—Flywheel
 HA—Hydraulic Automatic Adjustment
 TC—Top Center
 TG—Timing Gears
 VD—Vibration Damper



Studebaker sales zoomed to another new all-time high in May '49!

BIGGEST MONTH IN ALL STUDEBAKER HISTORY

Studebaker built more cars and trucks
and Studebaker dealers sold more cars and trucks
in May 1949 than in any month since Studebaker
started business!

Yes, Studebaker's May retail deliveries passed
April's by a substantial margin...and until May
came along, April had been Studebaker's biggest
month of all time!

1949's a Studebaker year all the way!
The biggest quarter in Studebaker history in
January, February, and March! The two biggest
months in Studebaker history in April and May!

*Studebaker's really rolling
in 1949 as never before!*

SHOP KINKS

\$25

FOR THE BEST KINK
PUBLISHED EACH MONTH

\$5

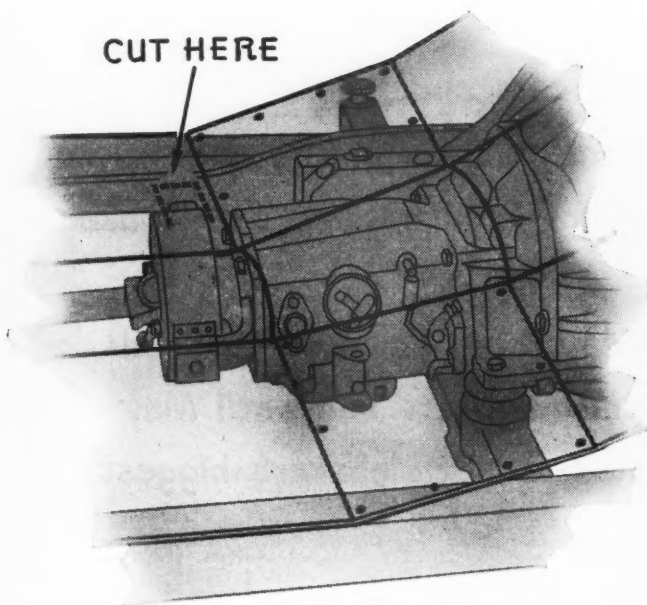
FOR ALL KINKS
PUBLISHED EACH MONTH



Have you figured out a short cut for doing a job, devised a special tool to make a job easier, or developed any other helpful idea? Your Shop Kink may be worth five, possibly 25 bucks. Write it or draw it—just make it plain, not fancy—and send it to Motor Age. Of course, we don't accept anything previously published.

BEST KINK OF THE MONTH

CUT HERE



Relining Emergency Brake on DeSoto

Recently a customer drove into my shop with a '41 DeSoto with the emergency brake lining completely shot. On this model in order to reline the emergency brake, the mechanic has to remove the transmission or disassemble the back end. I quoted him the price I'd have to get to make a fair profit and he thought it was too much.

When I suggested that I could save about two hours labor charge by cutting a one-inch square in the floor pan so that I could push the adjusting bolt through he OK'd the job and was all smiles.

Cut three sides of the square with a cold chisel and bend up the section. After the bolt is reinstalled, bend the section down over the hole and the job is complete. *Glenside Auto Repair, Glenside, Penna.*

Modifying Distributor on New Engine Installation

When installing a new Dodge engine in Plymouths (1935-1940) the distributor shaft should be ground off to prevent the crankshaft from hitting it and wearing out the bushings. To find out exactly where to grind, start engine for a few seconds to see where it strikes on the distributor shaft. *Leonard Morris, 727 First Ave., N.W., Faribault, Minnesota.*

Short Cut for Installing Camshaft on GMC Trucks

Here's a fast and easy way to install a camshaft or valve lifter without removing head or valves and springs on all General Motor L motors. Remove the valve keepers. Insert a $\frac{1}{8}$ in. x $1\frac{1}{2}$ in. cotter key through the valve spring and around the slim part of the adjusting nut. Rotate the spring until the valve and lifter assembly clears the camshaft by $\frac{1}{4}$ in. All valves

and lifters may be raised in this manner and are held in position by the cotter key and spring tension until the camshaft has been removed and replaced. *Al Hay, 1101 Calder, Beaumont, Texas.*

Flaring Tool Clamps Frozen Tubing to Permit Removing

On many occasions I have run into fittings frozen tight on fuel or brake tubings. This meant cutting (Continued on page 70)



THE DOCTOR OF MOTORS

Rumor Page



IT'S RUMORED THAT: Thousands and thousands of motorists will be "locked out" of their cars in '49!

THAT'S A FACT! Records show that over 640,000 motorists locked their keys in their cars in 1948—and human behavior isn't likely to change overnight!



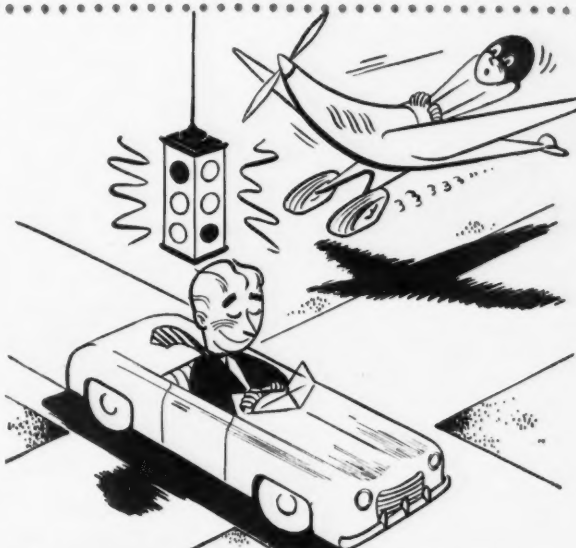
IT'S RUMORED THAT: Radar beams can set fire to aviation fuel!

RIGHT! It's been done in tests by a leading aircraft company—but only at limited distances and in certain circumstances. May develop into a great weapon, though.



IT'S RUMORED THAT: PC Solid Chrome Plated Rings are "life-savers" for other rings!

KEE-RECT! Perfect Circle chrome top compression rings—with a wear-rate up to 80% less than unplated rings—greatly increase life of cylinder and *all* rings. Reduce scuffing, scoring and wear. Greatly reduce run-in.



IT'S RUMORED THAT: Stop lights now keep planes and cars from tangling!

RIGHT AGAIN! Merrill Field in Anchorage, Alaska, has erected a stop light at an intersection where a highway crosses an airstrip!

—Contributed by Mrs. P. A. Setgler, 1007 N. Davis St., Albany, Ga.*

*Perfect Circle pays \$50.00 for any Rumor accepted for this page. None can be returned or acknowledged, and all become PC's property. Send yours to Perfect Circle Corporation, Hagerstown 11, Indiana.



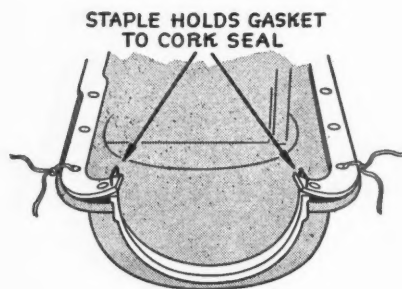
off the fitting and reflaring the line or replacing it.

Accidentally, I ran into a short cut. I used the clamping device of the flaring tool to hold the line. Providing you use the proper hole in the clamp you can securely tighten the clamp and never damage the line. With the clamp locking the tube it is fairly easy, except in extreme cases, to loosen the fitting from the line and make your disconnection without twisting the tubing. This saves time, work, and material. *Charles P. Hare, 2915 W. Coldspring Lane, Baltimore 15, Maryland.*

Installing Oil Pan

Gasket on Dodge

When installing oil pan gaskets on all Plymouth and Dodge, DeSoto and Chrysler cars, I use one wire staple on each corner to hold



the side gasket to front and rear cork seal, this prevents the side gasket from slipping off while I am pushing the pan in place, and also prevents any possible oil leak at the corners. *Bill Schwarz, c/o Franklin Garage, 6203 Franklin Blvd., Cleveland, Ohio.*

Simple Tool Helps In

Aligning Hudson Clutch

Finding ourselves without a pilot shaft to line up a Hudson clutch disc recently, we made one from a piece of $\frac{3}{4}$ inch pipe and a $\frac{3}{8}$ inch bolt. Using a ten inch length of $\frac{3}{4}$ inch pipe we ground the head of a $\frac{3}{8}$ inch bolt until it would fit into the pipe and then brazed it into place. We cut the bolt off $\frac{5}{8}$ of an

inch from the end of the pipe and the tool was completed. The $\frac{3}{4}$ inch pipe fits the clutch disc hub nicely and the $\frac{3}{8}$ inch bolt is just the right size to fit the pilot shaft bearing in the flywheel.

This simple tool puts the clutch disc in as perfect alignment for installation of the transmission as a main drive gear. *Jim Turner, Turner Service Station, 405 N. Brand Avenue, Pueblo, Colo.*

Oil Can Drainer Made of

Two Five-Gallon Cans

I have had trouble keeping the islands and pits free of empty oil cans and the mess they leave. This condition prompted me to devise this oil can drainer you see in the enclosed sketch. It cost me nothing to make and it really works. I used cans like Mobil Freezone cans painted red to match the color of the pumps.

To make the drainer I cut 8 holes in the upper can three quarters of their circumference. The last quarter I bent inside the can for a rack on which the can to be drained will be held. In the bottom of the upper can I cut a hole for the oil to drain into a corresponding hole in the top of the bottom can. The whole job took less than two hours of spare time to construct. *Robert E. Doyle, Rockville Center, New York.*

Installing 1941 Chrysler

Engine in 1939 Model

To install a 1941 New Yorker Fluid Drive Chrysler motor in a 1939 Chrysler the following suggestion may prove very helpful.

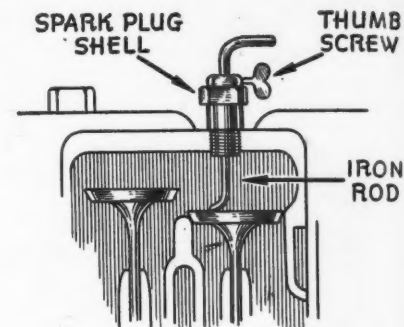
The clutch pressure plate is so long it hits the bell housing. By using a 1941-50 Buick pressure plate, a Dodge clutch disc, and a Buick release bearing and then cutting $\frac{1}{2}$ inch off the clutch arm ball, it will work perfect.

This saves machine work on the flywheel and back of the crankshaft which is $\frac{1}{2}$ inch too long. *Paul Williams, Paul's Garage, 32 No. Lewis, Tulsa, Oklahoma.*

Valve Spring

Replacement Tool

The job of replacing auto valve springs without removing the head is made easier by the tool shown in sketch. It holds the valve down while the spring is compressed to remove the keeper. It consists of



the shell of a discarded spark plug and an iron rod. A hole is drilled and tapped for a thumb screw, rod is inserted and bent in shape. To use, remove a spark plug, screw in the tool and then turn the rod until it rests on the valve. Then push it down and tighten with thumb screw. *Marion L. Rhodes, 30 W. Brown St., Knightstown, Indiana.*

Interchanging Parts When

Overhauling Crosley Rear

On 1948 and '49 Crosleys the spider gears in the differential occasionally wear and become noisy. This may be because of the absence of spacer shims in the carrier cage. We corrected this condition by installing shims from a Nash Model 600. Install one on each side of the spider as they will fit perfectly. This is a permanent cure. *Sherrill Sagendorf, 105 South 24th St., Billings, Montana.*

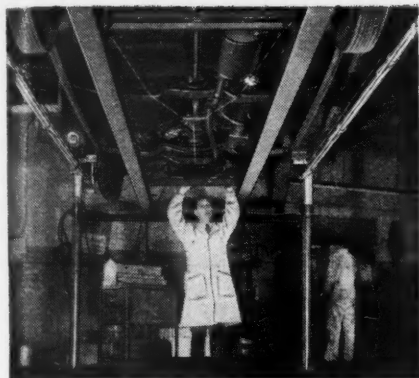
Time Saver When Removing

Flywheel on Chrysler

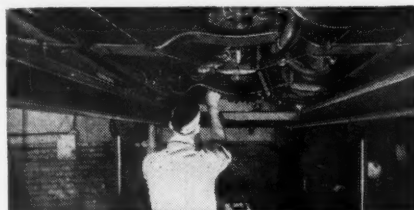
On Chrysler products, to remove a flywheel without pulling anything else apart: Place the flywheel bolts as shown in the sketch. Take a pair of dividers and find the widest bolts apart from one another. Then punch the bolts all the way back and it will come off without any effort. After new flywheel has been put in place a screw driver can be used to push the bolts back. *Harry Gessler, Babbitt Motors Inc., 29th & Clearfield Sts., Philadelphia 32, Penna.*

5 Big reasons why the new, improved **WALKER** *Electric Lift*

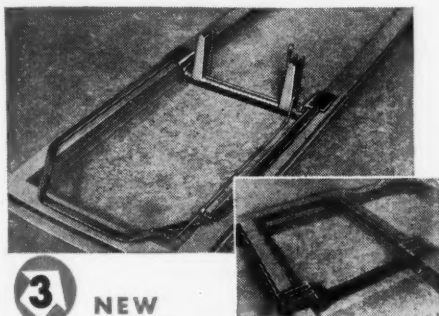
means increased service
volume and profits for you



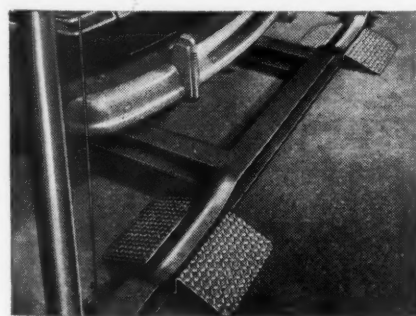
1 6 MORE INCHES OF
WORKING HEIGHT



2 36% GREATER WORKING SPACE
BETWEEN THE BEAMS



3 NEW
"EASY-SPOT"
SAFETY AXLE BLOCKS



4 NEW
DRIVE-OVER RAMPS

Here is the last word in modern lifting equipment—the advanced, new Walker Electric Lift. Developed in cooperation with car factory service managers, it provides maximum working space, increased under-car accessibility and ever broader utility for maintenance, for lubrication, for every under-car service.

New positioning of the support beams places them under the frame of the car, out of the way . . . increases unrestricted working space by 36%! Six extra inches of working height give even greater working convenience. From floor to car bottom, men and equipment work without hindrance—free from posts, free from any obstruction—in the famous Walker Open Work Zone.

Time saving operation is another outstanding feature. New "Easy-Spot" Safety Axle Blocks afford quick, accurate positioning when the car is driven onto the lift. When backing off, these blocks save additional time by lowering themselves. Of further assistance in positioning are the new Drive-Over Ramps, now standard equipment on all new Walker Free-Wheel Lifts. They provide an easy, bump-free approach, on or off the lift.

Above-ground-installation enables you to install the Walker quickly, easily, anywhere you want it—upstairs or downstairs—at the lowest installation cost of any lift on the market.

Increase your service volume and profits anywhere from 20% to 50% with these great time-saving, money-saving new Walker Lifts. They're the finest profit insurance you can buy.

WALKER MANUFACTURING CO. OF WISCONSIN
RACINE, WISCONSIN

Also makers of Walker Jacks, Silencers, Oil Filters

and equally important—
**LOWEST INSTALLATION COST OF
ANY LIFT ON THE MARKET**

5

Current Passenger Car Price, Weight and Body Table

Following are prices at factory for cars with standard equipment as of June 24, 1949.
State or local taxes, transportation and finance charges and optional equipment are extra.

BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight	BODY MAKE AND MODEL	List Price at Factory without Federal Taxes	Federal Taxes and Handling Charges	Delivered Price at Factory including Federal Taxes	Shipping Weight
BUICK					DE SOTO (Continued)					MERCURY					PLYMOUTH (Continued)				
Super 50 Sedanet.....	1913	146	2059	3735	Sta. Wagon.....				3565	Coupe, 6p.....	1845	134	1979	3321	Sedan, 2d.....				
Sedan, 4d.....	2006	151	2157	3835	Carry-All Custom Club Coupe.....	2042	114	2156	3585	Spt. Sedan, 4d.....	1895	136	2031	3386	Suburban.....	1740	100	1840	3105
Conv. Coupe.....	2410	173	2583	3985	Sedan, 4d, 6p.....	2059	115	2174	3645	Convertible, 6p Sta. Wagon.....	2255	155	2410	3591	DeLuxe-P18 Sedan, 4d.....	1435	84	1519	3034
Est. Wagon.....	2975	203	3178	4100	Convertible.....	2443	135	2578	3785		2545	171	2716	3626	Spec. DeL-P18 Club Coupe.....	1465	86	1551	3059
R'dmaster 70 Sedanet.....	2430	188	2618	4115	Sedan, 6p.....					NASH					Club Coupe.....	1515	88	1603	3048
Sedan, 4d.....	2541	194	2735	4205	Suburban.....					600 Super Sedan, 2d.....	1668	118	1786	2935	Sedan, 4d.....	1540	89	1629	3079
Conv. Coupe.....	2935	215	3150	4370						Brougham, 2d.....	1690	118	1808	2960	Conv. Ch. Cpe.....	1875	107	1982	3323
Est. Wagon.....	3490	244	3734	4490						Sedan, 4d.....	1693	118	1811	2950	Sta. Wagon.....	2245	127	2372	3341
CADILLAC					DODGE					600 Sup. Spec. Sedan, 2d.....	1703	121	1824	2935	PONTIAC				
Series 61 Club Coupe, 2d.....	2615	173	2788	3880	Wayfarer, D29 Coupe, 3p.....	1525	86	1611	3065	Sedan, 2d.....	1725	121	1846	2960	Chief-6 Bus. Coupe.....	1477	110	1587	3185
Tour. Sedan, 4d.....	2715	178	2893	3950	Roadster, 3p.....	1635	92	1727	3130	Brougham, 2d.....	1728	121	1849	2950	Sed. Coupe.....	1594	116	1710	3225
Series 62 Club Coupe, 2d.....	2785	181	2966	3910	Sedan, 2d.....				3180	Sedan, 4d.....					Sedan, 2d.....	1594	116	1710	3245
Tour. Sedan, 4d.....	2865	185	3050	3980	Meadowb'k D30 Sedan, 4d.....	1750	98	1846	3355	600 Custom Amb. Super.....	1873	127	2000	2985	Sedan, 4d.....	1642	119	1761	3275
Conv. Coupe, 2d.....	3290	207	3497	4230	Coronet D30 Club Coupe.....	1812	102	1914	3325	Sedan, 2d.....	2029	141	2170	3365	DeL. Sed. Cpe.....	1684	121	1805	3230
Series 60 Tour. Sedan, 4d.....	3595	233	3828	4150	Sedan, 4d.....	1825	102	1927	3380	Brougham, 2d.....	2050	141	2191	3390	DeL. Sed., 2d.....	1684	121	1805	3260
Series 75 Bus. Sedan, 9p.....	4365	285	4650		Twn. Sedan.....	1905	107	2012	3390	Sedan, 4d.....	2054	141	2195	3385	DeL. Sed., 4d.....	1732	124	1856	3290
Tour. Sedan, 4d.....	4460	290	4750	4665	Conv. Coupe.....	2206	123	2329	3570	Amb. Sup. Sp. Sedan, 2d.....	2074	144	2218	3365	DeL. Conv. Cpe. Streaml. 8 Sed. Coupe.....	1574	115	1689	3260
Sedan, 4d.....	4545	294	4839		Sta. Wagon.....					Brougham, 2d.....	2095	144	2239	3390	Sed. Coupe.....	1622	118	1740	3270
Bus. Imp., 9p.....	4670	300	4970	4685	FORD					Sedan, 4d.....	2099	144	2243	3385	DeL. Sed. Cpe.....	1664	120	1784	3270
Imperial, 7p.....	4860	310	5170	4720	Six Bus. Coupe.....	1236	97	1333	2871	Amb. Cust. Sedan, 2d.....	2189	149	2338	3400	DeL. Sedan, 4d.....	1712	123	1835	3315
CHEVROLET					Tudor.....	1323	102	1425	2945	Brougham.....	2210	149	2359	3415	Sta. Wag. 6 Wood.....	2385	158	2543	3680
Styleline GJ Bus. Coupe.....	1250	89	1339	3000	Fordor.....	1368	104	1472	2990	Sedan, 4d.....	2214	149	2363	3415	Metal.....	2385	158	2543	3540
Sedan, 2d.....	1320	93	1413	3035	Custom 6 Tudor.....	1405	106	1511	2948	OLDSMOBILE					DeL. Wood.....	2460	162	2622	3640
Spt. Coupe.....	1325	93	1418	3010	Club Coupe.....	1405	106	1511	2928	Series 76-6 Club Coupe.....	1615			3260	DeL. Metal.....	2460	162	2622	3490
Sedan, 4d.....	1365	95	1460	3075	Fordor.....	1450	109	1559	2993	Club Sedan.....	1640			3290	Chief. 8 Bus. Coupe.....	1542	114	1656	3240
Fi'tline GJ Sedan, 2d.....	1320	93	1413	3065	Eight Bus. Coupe.....	1318	102	1420	2911	Twn. Sedan.....	1700			3335	Sed. Coupe.....	1659	120	1779	3285
Sedan, 4d.....	1365	95	1460	3085	Tudor.....	1393	106	1499	2985	Sedan.....	1710			3340	Sedan, 2d.....	1659	120	1779	3315
Styleline GK Sedan, 2d.....	1395	97	1492	3085	Fordor.....	1438	108	1546	3030	Club Cpe., DeL. Club Sed., DeL. Twn. Sed., DeL. Sedan, DeL. Conv. Coupe.....	1750			3315	Sedan, 4d.....	1707	122	1829	3360
Spt. Coupe.....	1410	98	1508	3055	Custom 8 Tudor.....	1480	110	1590	2988	Sta. Wag., DeL. Series 88-8 Club Coupe.....	1835			3355	DeL. Sed. Cpe.....	1749	125	1874	3300
Sedan, 4d.....	1440	99	1539	3125	Club Coupe.....	1485	111	1596	2968	Club Sedan.....	1845			3400	DeL. Sedan, 2d.....	1749	125	1874	3325
Conv. Coupe.....	1740	117	1857	3355	Fordor.....	1525	113	1638	3033	Conv. Coupe.....	2010			3375	DeL. Sedan, 4d.....	1797	127	1924	3380
Sta. Wag., Wood.....	2130	137	2267	3500	Conv. Coupe.....	1820	129	1949	3274	Sta. Wag., DeL. Series 88-8 Club Coupe.....	2010			3580	DeL. Conv. Cpe. Streaml. 8 Sed. Coupe.....	2065	141	2206	3560
Fi'tline GK Sedan, 2d.....	1395	97	1492	3090	Sta. Wagon.....	2118	146	2264	3563	Club Coupe.....	2005			3550	Sedan, 4d.....	1639	119	1758	3315
Sedan, 4d.....	1440	99	1539	3115	FRAZER					Club Sedan.....	2030			3585	DeL. Sed. Cpe.....	1687	121	1808	3360
CHRYSLER					Manhattan.....	2264	131	2395	3455	Twn. Sedan.....	2080			3625	DeL. Sed., 4d.....	1729	124	1853	3340
Royal 6 Club Coupe.....	2002	112	2114	3531	HUDSON					Sedan.....	2100			3615	Sta. Wag. 8 Wood.....	2450	161	2611	3740
Sedan, 4d, 6p.....	2021	113	2134	3571	Super 6 Coupe, 3p.....	1915	138	2053	3460	Club Cpe., DeL. Club Sed., DeL. Twn. Sed., DeL. Sedan, DeL. Conv. Coupe.....	2130			3590	Metal.....	2450	161	2611	3605
Limousine, 8p Sta. Wagon, 9p Windsor 6 Club Coupe.....	2186	122	2308	3631	Brougham.....	2013	143	2156	3470	Conv. Coupe.....	2155			3615	DeL. Wood.....	2525	165	2690	3695
Sedan, 4d, 6p.....	2206	123	2329	3681	Club Coupe.....	2058	145	2203	3480	Sta. Wag., DeL. Series 98-8 Club Sedan.....	2215			3645	DeL. Metal.....	2525	165	2690	3550
Conv. Coupe.....	2598	143	2741	3845	Sedan, 4d.....	2061	146	2207	3500	Club Sedan.....	2225			3645	STUDEBAKER				
Limousine, 8p Sedan, 4d, 6p.....	2186	122	2308	3631	Conv. Brghm. Commodore 6 Club Coupe.....	2623	176	2799		Conv. Coupe.....	2400			3945	Champ. DeL. Coupe, 3p.....	1482	106	1588	2590
Sedan, 4d, 6p.....	2206	123	2329	3681	Commodore 6 Club Coupe.....	2205	154	2359	3550	Sedan.....	2340			3890	Sedan, 2d.....	1547	110	1657	2675
Conv. Coupe.....	2598	143	2741	3845	Sedan, 4d.....	2228	155	2383	3540	Club Sed., DeL. Sedan, DeL. Conv. Cpe., DeL. Packard.....	2430			3925	Sedan, 4d.....	1572	111	1683	2670
CROSLLEY					Super 8 Brougham.....	2768	184	2952		Club Sedan.....	2790			4200	Ch. Reg. DeL. Coupe, 3p.....	1552	110	1662	2615
Sedan, 2d.....	888			1115	Commodore 8 Club Coupe.....	2093	152	2245	3495	Club Sed., 2d.....	2094	130	2224	3740	Sedan, 2d.....	1617	114	1731	2685
Convertible.....	949			1110	Sedan, 4d.....	2138	154	2292	3525	Tour. Sed., 4d.....	2118	131	2249	3815	Coupe, 5p.....	1642	115	1757	2690
Sta. Wagon.....					Commodore 8 Club Coupe.....	2141	155	2296	3525	Sta. Sedan.....	3255	194	3449	4075	Sedan, 4d.....	1647	115	1762	2725
DE SOTO					Sedan, 4d.....	2285	163	2448	3570	DeLuxe 8 Club Sed., 2d.....	2221	137	2358	3770	Convertible.....	1955	131	2086	2865
De Luxe Club Coupe.....	1871	105	1976	3455	Conv. Brghm. Special.....	2848	193	3041	3600	Tour. Sed., 4d.....	2245	138	2383	3840	Coupe, 3p.....	1792	127	1919	
Sedan, 4d.....	1881	105	1986	3520	Traveler.....	1869	126	1995	3345	Super 8 Club Sed., 2d.....	2249	159	2608	3800	Sedan, 2d.....	1857	131	1988	3165
KAISER					De Luxe.....	2064	131	2195	3400	DeL. Ch. Sed. DeL. Tr. Sed. Conv. Vict. DeL. Sedan, 7p DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Coupe, 5p.....	1882	132	2014	3150
Special.....	1869	126	1995	3345	Virginian.....	2826	169	2995		DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Sedan, 4d.....	1887	132	2014	3195
Traveler.....	1958	130	2088		LINCOLN					DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Com. Reg. DeL. Coupe, 3p.....	1907	134	2041	
De Luxe.....	2064	131	2195	3400	Coupe, 6p.....	2350	177	2527	3959	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Sedan, 2d.....	1972	137	2109	3175
Virginian.....	2826	169	2995		Spt. Sedan, 4d.....	2395	180	2575	4009	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Coupe, 5p.....	1997	138	2135	3165
LINCOLN					Convertible.....	2910	206	3116	4224	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Sedan, 4d.....	2002	139	2141	3215
Coupe, 6p.....	2350	177	2527	3959	Cosmopolitan Coupe.....	2975	210	3185	4194	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Land Cruis. Convertible.....	2180	148	2328	3280
Spt. Sedan, 4d.....	2395	180	2575	4009	Twn. Sedan.....	3025	213	3238	4274	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870		2313	155	2468	3385
Convertible.....	2910	206	3116	4224	Spt. Sedan.....	3025	213	3238	4259	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	WILLYS				
Cosmopolitan Coupe.....	2975	210	3185	4194	Convertible, 6p.....	3700	248	3948	4419	DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Jeepster.....	1495	107	1602	2468
Twn. Sedan.....	3025	213	3238	4274						DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870	Sta. Wag., 4 cyl. Sta. Wag., 6 cyl. Sta. Wag., 6 cyl.	1595	186	1781	2887
Spt. Sedan.....	3025	213	3238	4259						DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870		1695	119	1814	2845
Convertible, 6p.....	3700	248	3948	4419						DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870		1745	121	1866	
										DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870					
										DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870					
										DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445	160	2633	3870					
										DeL. Limous. Custom 8 Tour. Sed., 4d.....	2445								

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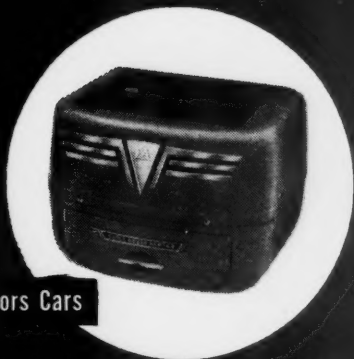
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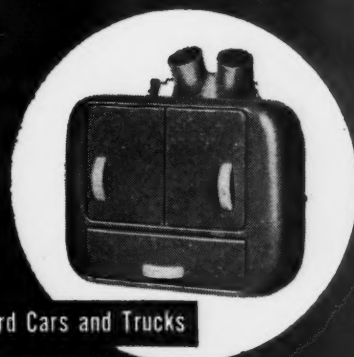
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GM-120—for General Motors Cars



C-805—for Chrysler Motors Cars



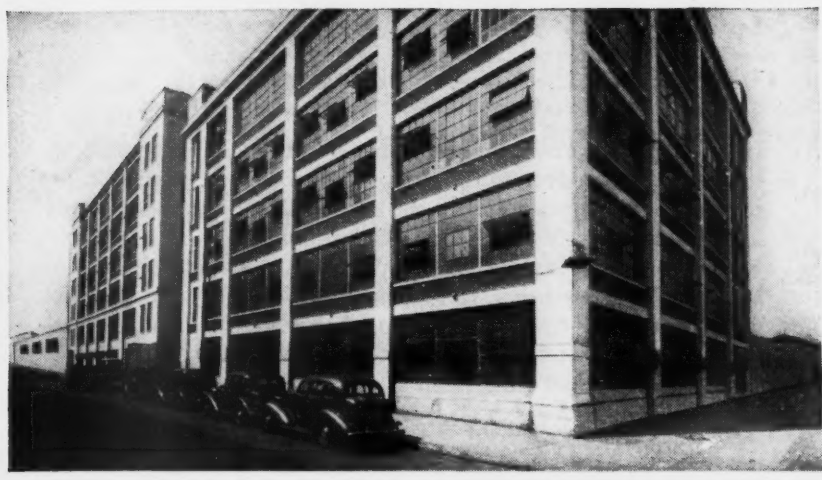
F-21B—for Mercurys, Ford Cars and Trucks

you we

When you buy from E.A. (national heater headquarters), you choose from a complete line of custom-built, easy-to-install heaters. You'll like E.A. big-dollar, top-performing value immediately . . . you'll like the high, wide and handsome profit that comes with every heater, too!

Whatever make or model car you sell, E.A. has the right heater for you. Buying from E.A. means being assured of the best possible service from the world's largest independent manufacturer of auto heaters. The heaters shown here are three leaders.

MADE BY E.A.
— THE LEADER SINCE 1904
IN THE AUTOMOTIVE
ACCESSORY FIELD



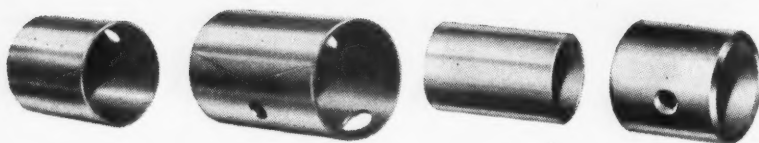
NewCrosleyDiscBrake Continued from Page 39

the friction spots are said to make service easier than on conventional braking systems.

Other changes made recently, according to Crosley, are the adoption of the new CIBA (cast-iron block) high-compression engine, with a compression ratio of 7.8 to 1; valve rotators, which are designed to increase the life of exhaust

valves; spiral bevel gears driving the overhead camshaft, which are said to insure quiet operation and longer engine life; and improvements in interior and body styling. The CIBA engine is fundamentally the same as the previously used COBRA engine except for the use of a cast iron block in place of a copper-brazed steel block.

BUSHINGS



**FOR EXACTLY THE RIGHT BUSHING
for Best Results...**

Ask Your Federal-Mogul Jobber!

Good mechanics know the piston pin bushing is as important to its end of the connecting rod as the precision insert bearing is to the other end. Always replace the bushings—they are part of the job "insurance"! Your Federal-Mogul jobber has the complete line of both solid cast and the new, easy-to-use V-seam piston-pin bushings. Quality bronze, precision manufacturing and nationwide availability make Federal-Mogul the line for you . . . the line for good reconditioning jobs!

FEDERAL-MOGUL SERVICE
Division of Federal-Mogul Corporation
DETROIT 13, MICHIGAN

*The Complete Line—
More Than 7,000 Numbers*
Engine Bearings (Main, Connecting Rod and Camshaft)
• Bushings • Connecting Rod Exchange • Reconditioned Connecting Rods •



Rebabbitted Connecting Rods • Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Bearing Metals • Laminated Shims • Solders

1899—FIFTY YEARS OF CONTINUOUS BEARING EXPERIENCE—1949



"It doesn't pay to punch a time clock late around here."

K-F Merger Story

Approximately two years ago Kaiser-Frazer attempted to form a corporation which would include Mack Truck, Willys-Overland, Reo, Graham-Paige, and Kaiser-Frazer but the plans never materialized, according to O. H. Motter, vice-president and general manager of Frazer Farm Implement Co. and a former K-F director. He made the statement at a Graham-Paige stockholders meeting in Lansing, Mich. early in June. He said that directors of the Frazer Farm Implement Co. visited Reo while in Lansing for the meeting, but said that there was no deal pending at present for K-F or Graham-Paige to buy the Reo plant as had been reported. Stockholders at the meeting of the farm implement firm, which is a Graham-Paige subsidiary, authorized an increase in capitalization of 2 million shares of common stock.

New Buick Model

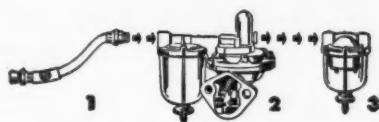
The new Buick Series 40 model will be announced to the public early in August. The 40 will have the newly styled "B" body which has been out of production all this year and will have completely new lines. It is reported also that the "Special" will lack much of the costly trim features currently used on the more expensive Buick Super and Roadmaster series. The Dynaflow torque converter transmission will be optional at extra cost.

America's Most Popular Equipment Unit the **AC FUEL PUMP**

AND ONE OF AMERICA'S MOST POPULAR REPLACEMENT ITEMS



AC **FUEL PUMP** SYSTEM



1. Leaky fuel lines are not only dangerous, but cause faulty operation of the fuel pump. Install a new AC Flexible Gasoline Line when you replace a fuel pump. 2. AC Fuel Pump, Heart of the Fuel System. 3. AC Gasoline Strainer keeps dirt and water out of carburetor, promotes easy starting and protects delicate carburetor parts. Every fuel system needs one.

Do you know any other automotive unit that enjoys such overwhelming demand?

Practically every car and truck in your territory has an AC Fuel Pump.

Since 1944, *AC Pump replacement sales have gone up 263%*. You can easily double or treble your AC Pump sales, because people are driving their cars longer . . . more pumps need replacing . . . and it is often cheaper to replace a pump than to repair it, because of today's high labor costs.

You can get your share of this tremendous market by doing two simple things—

- ① *Check your customer's pump, and*
- ② *Recommend replacement with a new pump as a preventive service measure. Your customers will appreciate it.*

If you aren't handling AC Fuel Pumps now, you are overlooking some nice profits. They're simple and easy to replace . . . they enjoy almost universal preference. And you can make 3 profits instead of 1, by selling the complete AC Fuel Pump System.

You'll be surprised how few AC Pumps you have to stock to cover your market. Ask your AC wholesaler about this profitable preventive service today.



Be a National Advertiser—Display this Sign

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

Your Customers . . . Continued from Page 41

against individual parties to the deceptive practices involved in the so-called "auto finance pack." At the outset, I believe, single suits would be ineffectual.

There may be an emotional satisfaction in swatting one mosquito but screening out a swarm is better.

It is only natural that businessmen who have consciously or uncon-

sciously drifted into a bad business habit would resent a vigorous exposure of that practice by the Better Business Bureaus, but they should bear in mind that the Better Business Bureaus are themselves composed of businessmen; many of the Bureau's substantial supporting contributors and a representative proportion of their officers and di-

rectors make their living selling automobiles or in the entirely necessary and essential credit financing of the same.

The Better Business people have always preached that what is good for the public is good for business and that the contrary is just as true; a deception to a consumer works a disservice to merchants.

It is to the credit of their integrity and the high ideals of their supporters who are automobile dealers and automobile financiers that they have not abated any effort towards correcting this evil.

There is significance to this Conference on the side of government too. We are here using the technique of a conference for all as the primary and, we hope, the final step instead of first initiating prosecutions against a few. This shows that bureaucratic taxidermy is on the wane.

We hope that this new method may bring about a greater proportion of law observance in a shorter period of time than the older, slower, unequitable method of prosecution of individual complaints.

If this can be accomplished here is how the general public will benefit—we may have a billion dollars worth of cars to sell in this country and purchasers may have a billion dollars worth of credit to buy those cars but our national economy is at a dead standstill unless we can get producers and consumers together. That is why the retail automobile dealers and the used car dealers and financing institutions are so important to good times. The ease and speed with which the exchange between the producer and purchaser takes place, the dollar velocity—as the economists call it, determines our industrial health. Any deceptive or unfair act which slows down this exchange naturally has an adverse effect on our country and our economy.

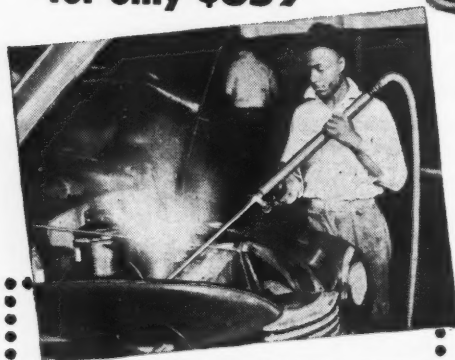
Here is how automobile manufacturers are concerned—present day techniques, in my opinion, have demonstrated the need of highly specialized skills. The effectiveness of dividing work into many separate fields shows little excuse for an automobile maker to get in the loan business, unless the financial institutions whose business it is to

(Continued on page 78)



Put the NEW SERVICE MASTER HYPPRESSURE *Jenny*

STEAM CLEANER
TO WORK IN YOUR SHOP
for only \$359

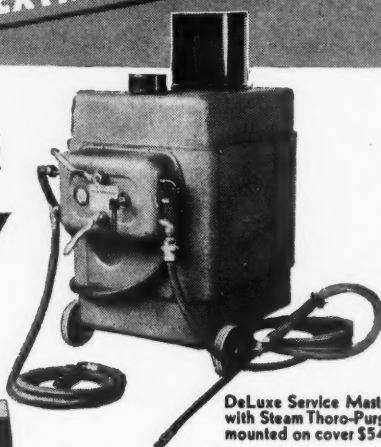


FREE! THIS AMAZING, NEW BOOK!
"1001 Ways to Extra Profits"



... is yours for the asking. It tells how Hyppressure Jenny and Steam Thoro-Purge will meet and beat competition in your area ... bring you more business ... make you more money.

Send for it today—now! No obligation.



DeLuxe Service Master
with Steam Thoro-Purge
mounted on cover \$547

The minute you do you'll start making more money—easier—than you've ever made before, cleaning motors, chassis, springs, grill work, preparing cars for undercoating and doing scores of other extra-profit jobs car owners need and want.

Combination Service Master and Steam Thoro-Purge will increase your business up to \$10,000 more a year on cooling system cleaning alone.

And besides all the profitable new business Hyppressure Jenny will bring to your Repair Shop, Service Station or Garage, it will save you additional hundreds of dollars a year in time and money by steam cleaning motors and parts before repairs, keeping lifts, pits, floors, walls, windows, driveways, lavatories, etc., clean as a pin in just one-tenth the time it now takes you to clean them by hand.

Service Master Hyppressure Jenny is light, portable, powerful; requires minimum floor space; is safe and easy to use.

Why not meet and beat competition by putting Service Master to work in your shop—now.

HYPRESSURE JENNY DIVISION

HOMESTEAD VALVE MANUFACTURING COMPANY

"Serving Since 1892"

P. O. BOX 95

CORAOPOLIS, PENNA.

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MINIMUM EFFORT...

MAXIMUM SALES!



**WITH WEATHERHEAD'S NEW
DASH CONTROL MERCHANDISER**

D-24

Faster turnover on-your dash control business is guaranteed by the new "Dee Cee" Merchandiser. BECAUSE . . . this well-designed merchandiser was built for eye-appeal, for plus sales. The "Dee Cee" Merchandiser is sturdily constructed of heavy gauge wire. It holds 24 assorted, complete dash controls, yet is compact enough for your counter or show window. The Weatherhead Dash Control Assortment includes 6 different types and colors selected to blend with any instrument panel. All controls are complete with conduit and wire.



FOR

Dealers • Service Stations • Garages

Contains 24 assorted, complete controls. Sturdy, lightweight metal construction. Size 14 1/4" long, 22" high, 11" deep.

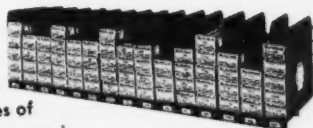
ORDER WEATHERHEAD MERCHANDISER D-24 TODAY!

TWO MORE VOLUME BUILDING MERCHANDISERS



The "double F" Farm and Field Merchandiser FF94 contains a balanced assortment of fittings and hose for farm and field equipment.

The "Shelf Master" fuel line assortment H275 contains a complete stock of types and sizes of fuel lines for cars, trucks and tractors.



Look Ahead With

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO

Plants: Cleveland, O. Angola, Ind. Columbia City, Ind. St. Thomas, Ontario, Can.

\$1,500 inventory abolished — at a cost of \$4.46!



With more than 700 vacuum tubes needed by industry, a tube distributor would find profits consumed by 100% inventories. But by ordering tubes as needed via Air Express, he holds stocks to 25%. Example: Orders \$1,500 tube at 9 A.M. from supplier 900 miles away. Delivered to customer 6 P.M. same day. 16 lbs.; cost, \$4.46.



Remember, \$4.46 included speedy pick-up and delivery service, too. More protection, because you get a receipt for every shipment. Air Express is the world's fastest shipping service.



Your Air Express shipments go by the Scheduled Airlines direct to over 1,000 airport cities; fastest air-rail for 22,000 off-airline offices. Shipments keep moving with 'round-the-clock service.

FACTS on low Air Express rates

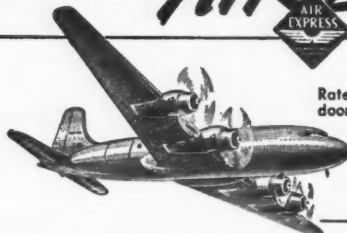
19 lbs. of machine parts goes 600 miles for \$3.54.
9-lb. carton of new styles goes 1400 miles for \$3.99.
(Every kind of business finds Air Express pays.)

Only Air Express gives you all these advantages: Special pick-up and delivery at no extra cost. You get a receipt for every shipment and delivery is proved by signature of consignee. One-carrier responsibility. Assured protection, too—valuation coverage up to \$50 without extra charge. Practically no limitation on size or weight. For fast shipping action, phone Air Express Division, Railway Express Agency. And specify "Air Express delivery" on orders.

SPECIFY AIR EXPRESS



GETS THERE FIRST



Rates include special pick-up and delivery door to door in principal towns and cities



AIR EXPRESS, A SERVICE OF RAILWAY EXPRESS AGENCY AND THE
SCHEDULED AIRLINES OF THE U. S.

Tell Your Customers

The Truth

Continued from Page 76

service the public in that field have either neglected or abused car buyers so that the movement of cars from factory production line to the driving public is slowed down.

It is true that for many years the banks looked down their noses on Mr. Average Citizen who wanted to finance the purchase of a car, and it also is true the high rates charged by small loan companies were certainly no encouragement to prospective customers. Those days have pretty well gone, but on the other hand if financial institutions continue to compete for the purchase of installment paper on the basis of "side dough" slipped to the car seller, we should look with favor on automobile makers, corset makers, candle stick makers, or anyone else offering the purchasing public a clear cut credit service free of deception.

This brings us to those who are directly concerned with a Trade Practice Conference in this industry, the car purchaser, the car seller and the financial organization that makes the transfer possible.

The car dealer who, after signing up his prospective customer reaches for the red book instead of the green book—because he figures he can work the guy for a bigger kick-back than the average buyer—is not only treating his customer like a sucker; he is playing himself for one, too. Let's look at the situation and see if this isn't so.

The volume of installment credit is going to increase by leaps and bounds in the next few months. As Thomas W. Rogers, of the American Finance Conference, pointed out a year ago, the percentage of outstanding consumer credit represented by automobile installment buying has been increasing since the low point in 1943. Today you will find that the easing of restrictions has boosted this type of buying way above its normal growth.

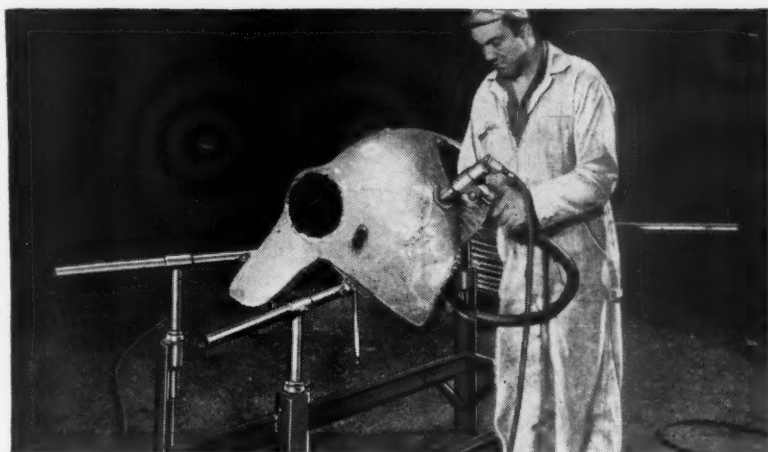
I discovered the rise in April of this year was nearly a quarter of a billion dollars; three-fourths of this was time purchasing of cars. There has also been a natural increase in the financing of household

(Continued on page 80)

Attention: Body Shop Operators!

Without *Reck-Rack*[®] YOU LOSE DOLLARS EVERY DAY

New, Low-Cost Equipment Slashes Time 50% on All Off-the-Car Roughout and Metal Finishing



32 VARIOUS FLEXIBLE POINTS of adjustment adapt Reck-Rack to *rigidly* hold any size or shape of body section in the most convenient position and height for all roughing and finishing jobs. No jiggle! No special training! Make any set-up in 90 seconds.

Reck-Rack Steps up Output Equal to Work of an Extra Man

Amazing Profit-Return Repays Investment Quickly

Thousands of owners are already enjoying the startling cost-cutting and money-making benefits of the new Reck-Rack.

Necessary to Profits

Experts agree that Reck-Rack is the cure for the time-wasting, costly wrestling with bulky, massive modern body sections during roughing and finishing operations.

It had to come! A new means for profitably handling these cumbersome body sections are now yours with Reck-Rack.

Here is your key to increased shop profits — greater output — improved competitive position—and faster used-car reconditioning.

See For Yourself

Give Reck-Rack a trial in your shop! Join the thousands who are today enjoying Reck-Rack benefits.

Order Reck-Rack from your jobber today!

RECK-RACK Helps You do ALL THESE Jobs Faster, Easier		RECK-RACK Handles ANY Shape		
 STRAIGHTENING	 HAMMERING	 DOORS	 HOODS	 TRUNK LIDS
 SANDING	 FILING	 DOLLYING	 FENDERS	 GRILLES
			 BODY PANELS	

BLACKHAWK[®]
HYDRAULIC JACKS • PORTO-POWER • WRENCHES

BLACKHAWK MFG. CO. Dept. R-679, Milwaukee 1, Wis.
Without obligation to me, please do the following:

- ☐ Arrange Reck-Rack demonstration, if possible, in our shop.
- ☐ Send free literature on Reck-Rack.

NAME _____

FIRM _____

ADDRESS _____

CITY _____

STATE _____

appliances and similar items.

All of this means that the public is becoming more and more conscious of time purchase contracts. They and their state legislators want to know what these contracts mean and they are going to find out.

In my opinion the combined onslaught of the organized good in industry is represented by the

Trade Associations and the force of public opinion awakened by the Better Business Bureaus throughout the country, backed by the co-operative and punitive functions of the Federal Trade Commission, will make "side dough" as popular as a skunk at a picnic.

I predict the day is near, and its advent will be hastened by the Fair

Trade Conference next September 15th. I think the time is ripe when the insignia of all car dealer associations on the window of an automobile sales room and the format of all reputable finance institution's sales contracts should be guarantees to the public that full disclosure is made of the items that make up the time price differential.

The smart car salesman who belongs to his National Association has a large forward investment in his business and wants to maintain a stable public acceptance of his operations. He will want to see that his colleagues have no part in deceiving customers.

No single automobile dealer can effect an overall correction of this problem because the single automobile dealer who rejects an offered profit on excess finance charges places himself at a competitive disadvantage with his rival in business. Trade Association executives, working alone, no matter how they may desire to save their industry from the decadence of secret avarice, are powerless to accomplish that which their membership is not willing to collectively agree to.

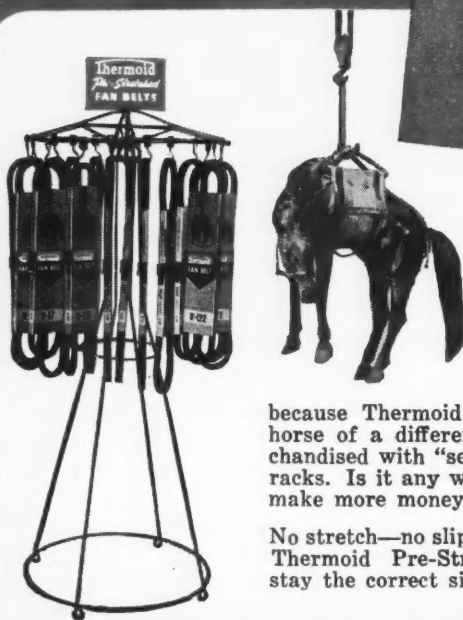
The same holds true of finance conferences, each patterns its service on the actions of its members.

I cannot pass up the opportunity to commend the State Trade Associations in the Automobile Retail Business who have taken a firm stand against the "pack."

Put Your Money on the

Thermoid Line

THE BEST
NAME IN
FAN
BELTS



First in favor because Thermoid Fan Belts are "a horse of a different color" and merchandised with "sell-on-sight" display racks. Is it any wonder more dealers make more money with Thermoid?

No stretch—no slip—no wear—no fail, Thermoid Pre-Stretched Fan Belts stay the correct size.

The Thermoid Line

Brake Linings • Clutch Facings • Fan Belts
Radiator Hose • Hydraulic Brake Parts and Fluid
Car Mats • Thermoid Precision Process Equipment
Complete Brake Service Departments

Thermoid Company, Trenton, New Jersey

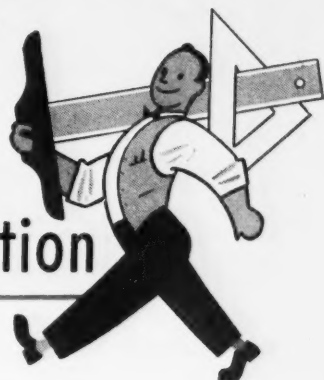


"Boy, I'd hate to go out with him!"

FOR CUSTOMER SATISFACTION

MOPAR PARTS

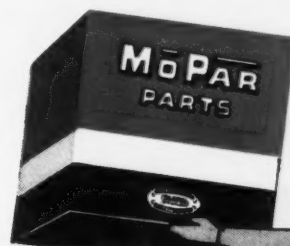
engineered by Chrysler Corporation



inspected by Chrysler Corporation



supplied by Chrysler Corporation



Through
Dealers

FOR

PLYMOUTH · DODGE · DE SOTO · CHRYSLER CARS
DODGE *"Job-Rated"* TRUCKS
CHRYSLER INDUSTRIAL ENGINES



Award Program

Advertising merit awards to automotive wholesalers for the most outstanding local advertising and sales promotion programs will be made again this year by the Automotive Advertisers Council.

In making the announcement, S. R. Robinson, chairman of the Council's Advertising Awards Committee pointed out that the exceptional

interest and constructive results developed by last year's contest, indicates that there will be even greater attention to this subject during the current year.

"Advertising is a selling tool which automotive wholesalers are using with constantly increasing effectiveness," he stated, "and it is proving most helpful under today's

competitive marketing conditions. Every entry in this contest is a contribution to the advancement of all wholesaler advertising."

It is pointed out by Mr. Robinson that the contest is open to any automotive wholesaler, 75 per cent or more of whose volume is in the automotive aftermarket at wholesale. "Every entrant has an equal opportunity to win," he stated, "as the competition is divided into four volume groups: Up to \$250,000; \$250,000 to \$500,000; \$500,000 to \$2,000,000; and over \$2,000,000."

Just as in last year's contest, there will be 12 awards, a first, second and third award within each of the four volume groups. There will be a special group of awards for Canadian wholesalers, and another special group for overseas wholesalers providing a representative number of entries are received.

Rules provide that entries may include direct mail, radio, newspapers, house organs, clinics, shows, special events, openings, contests, dealer meetings, country or state fair participation, etc. Material or plans originated by the wholesaler, or cooperative programs between wholesaler and suppliers are eligible to be included in the contest. The advertising or sales promotion entered must have been done between Sept. 1, 1948 and Aug. 31, 1949.

It was emphasized by Mr. Robinson that entries need not be elaborate. However, they must be submitted in some organized manner, such as a scrapbook or portfolio with written explanation of objectives and records of results.

Among the factors on which entries will be judged are perfection of plan, comprehensiveness, evidence of a definite advertising and promotional budget for the year, evidence of effective use of manufacturer's material, quality of material and originality of ideas.

Entry blanks and copies of contest rules and suggestions are obtainable from the headquarters office of National Standard Parts Association or Motor and Equipment Wholesalers Association, or from George Stout, executive secretary, Automotive Advertisers Council, 105 Jennings Building, New Castle, Ind. Both NSPA and MEWA have already announced the contest to their membership.



- NO WIPING
- NO CHAMOISING

Make car washing more profitable the ZECOL WASH WAY! All you do is wash . . . then rinse. You get that sparkling ZECOL look . . . no streaks or spots . . . without time-consuming wiping or chamoising. ZECOL WASH does the entire job! Remember, ZECOL CAR WASH is another top quality product . . . contains all active ingredients, no fillers or harsh alkalis . . . made by the manufacturers of famous ZECOL WAX!



SAFE TO USE
WILL NOT HARM
FINISH OR
AFFECT HANDS!

ECONOMICALLY PACKAGED!

6 oz. Cans (packed 12 to carton) for consumer sales . . . to wash 6 cars per can
4 lb. Can . . . to wash 128 cars
18 lb. Pail . . . to wash 578 cars (sturdy container has handle, can be used as wash pail)
36 lb. Drum . . . to wash 1156 cars
72 lb. Drum . . . to wash 2312 cars
170 lb. Drum . . . to wash 5440 cars

MAIL THIS COUPON TODAY!

ZECOL INC., MILWAUKEE 1, WIS. 7M
West Coast: 1335 W. Olympic Blvd., Los Angeles
East Coast: 20 West 60th St., New York City.
Gentlemen: Please rush me, without obligation, your latest price list and catalog on ZECOL CAR WASH.

NAME _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

"OLD-TYPE GASKETS COST MONEY IN NEW HIGH COMPRESSION ENGINES,"

Says P. J. FITZGERALD

*"IT PAYS TO USE NEW
FITZGERALD METALLIC
ALUMINUM-FUSED-OXIDE
STEEL ASBESTOS GASKETS*"*

*"High compression motors generate
such high pressures and heat that
head gaskets made from conventional
materials deteriorate rapidly and
need frequent replacement—*

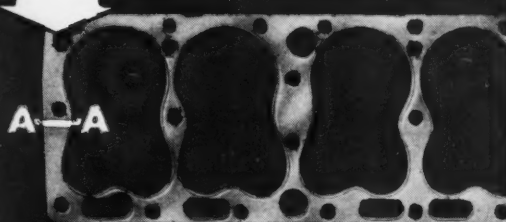
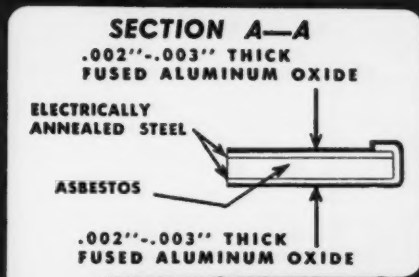
THAT COSTS MONEY!

*"To eliminate this source of trouble
and expense, we developed Fitzgerald
Metallic Aluminum-Fused-Oxide Steel
Asbestos Gaskets*. Because they
stand up where others fail, it pays
to use them."*

P. J. Fitzgerald
PRESIDENT

Grease Retainers—Cork Gaskets
FITZ-Rite* Treated Fiber Gaskets
for oil, gasoline and water connections
COMPLETE SETS FOR MOTOR REBUILDERS

*T. M. Reg. U. S. Pat. Off.



Steel, specially tempered for toughness and resiliency, provides strength in combination with fused aluminum oxide for easy removal and rust prevention, and high grade asbestos filler for a lasting, perfect seal.

FITZGERALD
Gaskets
SINCE 1906

THE FITZGERALD MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT

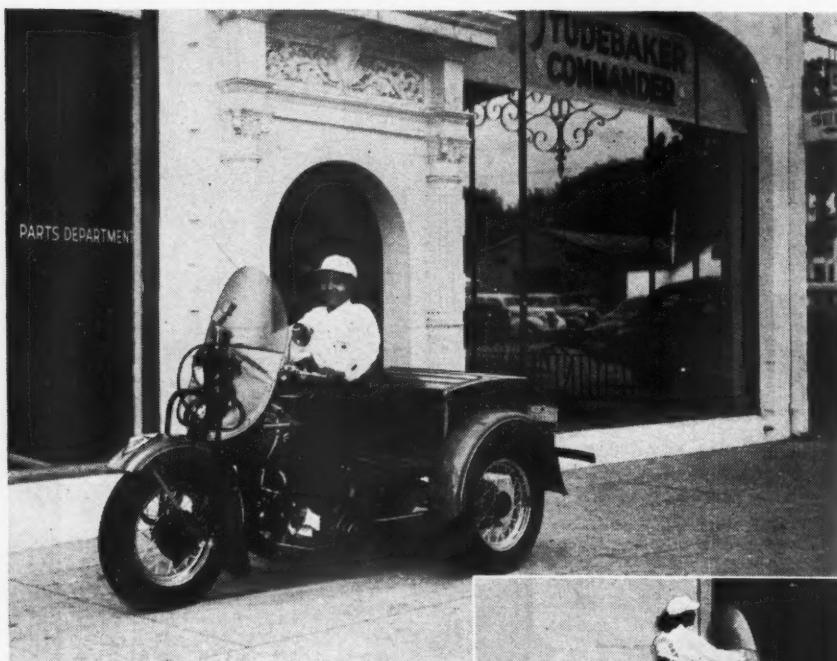
THERE'S A FITZGERALD GASKET FOR EVERY ENGINE

SERVI-CAR

"The most valuable piece of equipment we ever purchased"

... say **WARREN & DAY**

STUDEBAKER DEALERS — SAN BERNARDINO, CALIFORNIA



This modern Servi-Car with its neat, attractive driver "tells the world", that Warren & Day, Studebaker dealers at San Bernardino, believe in giving their customers the very best in fast, efficient, modern service.



"THE Servi-Car is undoubtedly the most valuable piece of equipment we have ever purchased for our business. We have found it absolutely indispensable. In the first place, it saves us 60% of pick-up and delivery costs. In the second place, we have enjoyed an increase in service volume of 10% since having the Servi-Car. It has tremendous advertising value while it is out on the streets. Comments are made daily about our Servi-Car and its nattily dressed girl driver. We feel that it is equivalent to several hundred dollars monthly spent on newspaper advertising". In these words Warren & Day describe the benefits to them of Servi-Car service.

Servi-Car owners everywhere say their Servi-Cars are indispensable for getting the edge on competition by providing faster service and maintaining good will. They have learned, too, that Servi-Cars cut costs by keeping shop work moving, by saving time in parts and accessory pickups, and by bringing in new business from all over town.

Now, more than ever, *you* need the sales and service help of a Servi-Car. See your Harley-Davidson dealer today or write

HARLEY-DAVIDSON MOTOR CO.
DEPT. MA, MILWAUKEE 1, WISCONSIN

V-6 Engine

One of the large automobile companies has a V-6 engine under development but it still is too early to tell whether or not it will be used. Several of the engines have been built and are under test, and reports say that they are operating satisfactorily. Biggest problem in the V-6 is to balance the engine, which can be done but at considerable expense. It is reported, however, that considerable progress is being made in development of an engine in which satisfactory balance characteristics and production costs can be achieved.

Studebaker Sales Drive

Studebaker Corporation continues to make a remarkable showing in retail sales as compared with prewar years. The company's dealers during May made the highest number of retail deliveries of cars and trucks for any month in Studebaker history. May was the largest production month in the company's history with a total of 27,434 cars and trucks. It now looks as though deliveries of cars and trucks the first half of this year will be higher than for any full year before the war.

Auto Market Survey

There is considerable skepticism among Government economists of the Federal Reserve Board's survey which indicates that between 3,600,000 and 5,100,000 consumers will be in the market for new automobiles this year as compared with 3,100,000 consumers who bought autos in 1948. Reason: survey was taken between Jan. 1 and March 15, and there is no indication as to whether consumer attitudes have changed since that time. However, another similar survey will be taken this month which will indicate whether consumers have been greatly affected by the general downswing in production.

*DOLLARS
for dealers...*

The New Auto-Lite
Silver Line



AUTO-LITE

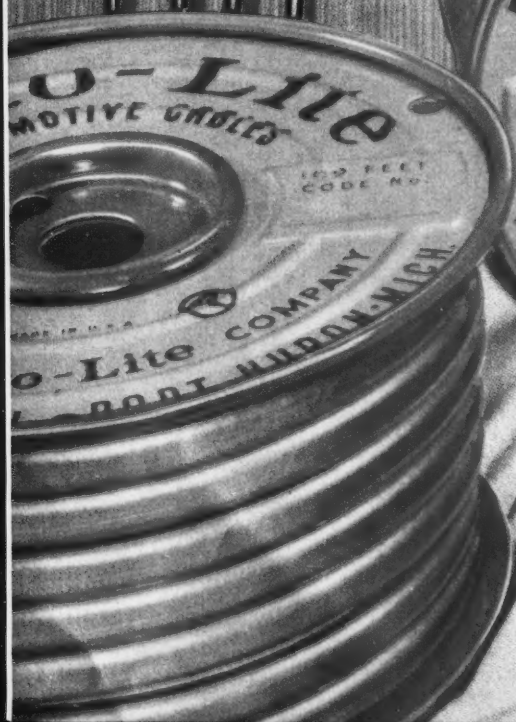
WIRE AND CABLE

"IGNITION ENGINEERED" for Every Automotive Need

AUTO-LITE

Ignition Engineered

AUTOMOTIVE CABLES



AUTO-LITE

BATTERY CABLE

AUTO-LITE

AUTO-LITE

AUTOMOTIVE CABLE PRODUCTS

AUTO-LITE

Steelductor

SPARK PLUG WIRE SET

Silver Sheathed

AUTO-LITE Steelductor SPARK PLUG WIRE SET

360

AUTO-LITE

AUTOMOTIVE CABLE PRODUCTS

AUTO-LITE

AUTOMOTIVE CABLE PRODUCTS



Only Auto-Lite...

Silver Line

GIVES YOU THIS

Dollar Making Combination

New **SILVER LINE PACKAGING**

Brilliant in appearance, outstanding in design . . . helps build customer demand for this top quality line.

New **FLEXSTRAND PRIMARY WIRE**

Improved construction. Additional strands of finer wire provide amazing flexibility, ease of handling and resistance to vibration.

New **POWER-LINE TERMINAL**

The last word in modern design! Battery cable terminal engineered for a more perfect connection, without distortion to terminal or post.

New **SILVER LINE DISPLAYS**

New counter merchandiser for Steel-Ductor Ignition sets; Silver Battery Cable Display Board; Stringer Display.

★ **ORIGINAL EQUIPMENT**

Auto-Lite Original Equipment places the stamp of approval on Auto-Lite Wire & Cable products. Original Equipment leads to replacement sales.

★ **NATIONALLY ADVERTISED**

Auto-Lite "Silver Line" Wire and Cable highlighted weekly on Auto-Lite's network radio and television shows—"SUSPENSE"

AVAILABLE TO
All Stocking Dealers
AT NO EXTRA COST!



Mr. Dealer:

Ask your Auto-Lite Wire & Cable Supplier how you too, can qualify at no extra cost for this outstanding 16 hook Silver Metal Battery Cable Display Board . . . or write for further information to . . .

THE ELECTRIC AUTO-LITE CO.
Merchandising Division, Toledo 1, Ohio

Engine Sales Lag

Sales of replacement engines and short blocks have slumped badly so far this year. One company cut-off production entirely for a month in order to allow field inventories to diminish and in that period did not get a single order from its dealers. Several months ago General Motors estimated that engine replacement sales in 1949 would drop 50 per cent.

Automotive Tax Repeal

The automobile industry is watching with considerable interest, but not too much optimism, the progress of a bill introduced in Congress to repeal federal emergency automobile taxes. The bill would repeal all federal levies on cars, trucks, buses, gasoline, lubricating oil, tires and tubes, and parts and accessories. Representative Thomas E. Martin of Iowa, who introduced the bill, says that such taxes cost more than a billion dollars a year but have no connection whatever with federal highway aid.

New York AWA

Norman A. Sippell of Unit Parts Corporation, Buffalo, N. Y. has been elected President of the New York State Automotive Wholesalers Association. Frank A. Brydges of Barker, Rose & Kimball Inc., Elmira, N. Y. was elected 1st Vice-President, Samuel B. Weiss, Detroit Supply Co., Inc., Albany, N. Y., 2nd Vice-President, William Downey, Balco-Pedrick Parts, Buffalo, N. Y., secretary and Ralph L. Krohn, Genesee Supply Co., Inc., Utica, N. Y., treasurer.



"What did I do wrong this time, Mr. Pasquale?"

High Employment

Continued high employment in the automobile industry, at a level slightly lower than last year, was indicated by a labor market study of the industry based on reports from local public employment offices to the U. S. Employment Service, Bureau of Employment Security.

Total employment during the past year has been maintained at fairly high levels. Little change in numbers of workers is expected in

the near future.

The following is a brief summary of the USES study:

Employment in the 233 establishments covered by the survey was expected by July to show a small increase over the 656,000 workers employed in March, the month in which the reports were made. Employment in the entire industry in April was 960,000, slightly above the March level but still below the January level of 972,000.

(Continued on page 90)

The Shop Gets A New King!



HOW NUGGETS PAID OUT FOR RAY

TOSS OUT YOUR MONEY-WASTING WRENCHES THEY PAY FOR THEMSELVES BY RATE-BUSTING

TAKE A TIP FROM RATE-BUSTING



1. The Money he SAVED by buying NUGGETS was applied toward the cost of his Wrench-Bench.
2. He made more money because NUGGETS helped him bust flat-rate schedules.

NUGGETS have a DOUBLE-DUTY drive that replaces both $\frac{3}{8}$ " and $\frac{1}{2}$ " drives and banishes duplication of socket sizes and handle types. Write for literature. BLACKHAWK MFG. CO., Dept. W679, Milwaukee, Wis.

NUGGETS DO MORE WORK PER MINUTE. They last longer, too. MAKE MORE MONEY by speeding and improving work. Strong, lightweight. NUGGETS LOOK AND FEEL better. ONE drive handles all sockets from 6" to 11" and does ALL work of 2" and 1 1/2" drives!



MAIL THIS COUPON TODAY!

to BLACKHAWK MFG. CO., Dept. W679, Milwaukee 1, Wis.

Please send me RUSH your FREE booklet on Rate-Busting Nugget Socket Wrenches.

NAME.....
ADDRESS.....
CITY..... STATE.....

High Employment

Continued from page 89

Backlog demand for passenger cars is declining but is still large and most cars are being sold as fast as they are manufactured. Trucks have hit a buyers' market and supply has overtaken demand except for light trucks. Some parts manufacturers have reported a drop in replacement demand, although orders for new assemblies have

been firm this first quarter.

Increased orders from aircraft firms have to some extent cushioned the slump in parts plants.

Increased labor efficiency and improved production techniques are apparently taking place and are having some effect on employment trends.

Large manufacturers in March were proceeding with expansion plans that indicated an increased total employment before mid-summer. Some employment losses in

individual plants, however, may not be recovered. Most of the employment expansion represents anticipated recalls of workers previously laid off. The recall list is extensive and generally precludes the entrance of new workers in the industry, except in the highly specialized skills and in clerical work. Layoffs were especially heavy in truck trailer and in passenger car body plants.

Better Cataloging

Publication of a new 12-page booklet on "Industry Standards for Catalogs and Suggested Price Schedules" has focused attention on an extensive new program for securing better cataloging launched by the National Standard Parts Association. While this booklet is the keystone to the entire plan, it is, however, just one of a series of nine booklets and bulletins which provide actual recommendations for manufacturers, wholesalers and their staffs for improving catalogs.

The Catalog Standards booklet covers all catalog specifications—page size, type page size, margins, punching, page identification, type sizes, paper stock and illustrations. In addition, several pages are devoted to illustrations of page dimensions, recommended type sizes and page identifications so that the text can be followed simply.

To make it easy for users of the catalog material to save it for reference, NSPA has provided a bright red file folder with a fitting identification tab printed in large bold type.

Triplex Corporation

Frank I. Lamb, president of Triplex Corp. of America, manufacturer of pistons, announces the moving of the entire office and factory from Chicago to Pueblo, Colo. Last November Triplex leased ten buildings situated on a former army air field base and totalling 150,000 sq. ft. of space.

The undertaking involves the moving of \$2,500,000 dollars worth of equipment. In addition, another half million dollars worth of new machinery is being shipped from manufacturers direct to the new site.

(Continued on page 92)

START SALES... STOP LEAKS

with ONE-SHOT SEALZIT



WINDSHIELD
SEALZIT
 SEALS LEAKS

29¢
 WINDSHIELD
SEALZIT

A PROFIT-PROVED PRODUCT IN A NEW "REPEAT-SALES" TUBE!

These 29¢ individual tubes (enough to seal up a leaky windshield) are a one-shot, fast-moving item for your counter. Customers want this easy, sure way of fixing leaks. Three dozen tubes packed on attractive display card... just set it up and watch them go for this new idea. No sticky fingers, no muss.

SEALZIT is easy to use—just break off the red plastic tip and apply transparent **SEALZIT** along windshield edge. It seeks out and seals up leaks. **NOT** a gum, it penetrates between glass and frame; stops leaks permanently. Stays flexible, will not dry out, harden up or peel off. Not affected by heat or cold.

Don't forget the big economy package is a high profit-maker: 2 oz. bottle of clear **SEALZIT**, with dropper and brush, seals all window leaks, waterproofs ignition wires and battery terminals. Fine for chrome touch-up, too. Keep it out front... if it's seen, it's sold.

Available for immediate delivery from your automotive supplies jobber, or write for source near you.

2 OZ.
 BOTTLE
 WINDSHIELD
SEALZIT

SEALZIT

MANUFACTURED BY FOSTER & KESTER CO., INC.,
 2601 NORTH BROAD ST., PHILADELPHIA 32, PA.

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ly, 1949



Look for this "MOLE HILL"... it can mean a "MOUNTAIN" of Purolator sales!



**QUICK CHECK!
QUICK CHANGE!
NO TOOLS!**

Sales are faster with Purolator's Wing Nut top because no tools are needed to check and change the element. Just lift the cover and the dirty element comes with it. Put in a Purolator Micronic Refill in a few seconds!

Every time you make an oil check... look for this "muck" in the oil filter and you'll multiply your sales of Purolator Refills.

To get the driver's O.K. to check the filter... just remind him that he's driving *more often, under dustier conditions*, in Summertime. Explain how a clogged oil filter could easily lead to costly engine repairs.

If he then sees you take a muck-laden element from *his* filter—you have an easy Purolator Refill sale! And don't hesitate to remind him

that with Purolator on the job, 290% more engine-wrecking abrasives are removed from the oil stream. Because, of course, the Purolator Micronic Filter removes particles as small as .000039 of an inch... and has an accordion-pleated design that provides a filtering surface 5 times that of old-style filters.

Be sure you get *your* share of Summertime filter sales. Stock up *now* with Purolators... and *look for the engine-wrecking muck that means extra sales and profits.*



FREE!

Purolator's "SALES MAKER"—pocket-size folder packed with sure-fire tips on how to sell oil filters and refills! Big action pictures show you what to do... how to do it. Send for your free copy today!



Purolator Products Inc., Newark 2, New Jersey and Windsor, Ontario, Canada

Triplex Corporation

(Continued from page 90)

The move to Colorado was influenced greatly by the National Resources board of Washington, and is in keeping with the U. S. government's desire for decentralization of this country's vast industrial power. The deal represents the largest industrial expansion for Pueblo since the ordnance depot was built several years ago. The firm expects to hire an addi-

tional 300 people locally, adding an annual million-dollar payroll to that area.

The Leland Corporation

R. K. Miller, J. A. Berry and Frank Virgilio have organized the Leland Corp. in Chicago. In the near future they plan to offer to the replacement trade a complete line of engine bearings, connecting rods and a complete connecting rod re-babbiting service.

Marshall Plan Authorizations

Marshall Plan authorizations for motor vehicles, parts and accessories from the beginning of the program in April, 1948 to June 1, 1949, totaled \$109.3 million. Petroleum shipments under the Marshall Plan also continue to rise. However, in the eight largest consuming countries in Western Europe, it is estimated that only 8 per cent of all oil will be used for private motor cars and motor cycles compared to 21 per cent in the prewar period. In contrast, consumption for all other transportation purposes is expected to increase by 45 per cent during the next 12 months.

Anti-Trust Statute

The Supreme Court last month struck down exclusive dealing contracts used by many major oil companies. The Court ruled that Standard Oil of California had violated the anti-trust statutes by using contracts which resulted in independent service station operators agreeing to buy only petroleum products and accessories sold or approved by Standard of California. However, the Court pointed out that its decision did not prohibit oil companies from using an agency system, under which independent service stations operate as company agents. While the decision applied only to Standard of California, it will affect a majority of company-dealer arrangement now in existence.

"...and use 'VIXENS' for speed—



—they're faster-cutting files!"

ONLY
HELLER
MAKES
"VIXENS"

"Vixen" Files have been serving auto body and fender shops for years. Widely imitated, they have never been equalled. Specify genuine "Vixens"—made only by Heller—when you order from your jobber.

"Take a tip from an old-timer who knows. Body and fender refinishing goes a lot faster with genuine Flexible 'Vixen' Files. Easier, too. Each deep, curved tooth cuts just right—whether you push straight ahead or file at an angle.

"And another thing. 'Vixens' don't clog up with chips that spoil the finish. Just a quick, smooth job every time. That's good filing... 'Vixen' filing!"

HELLER BROTHERS COMPANY

Newark, N. J.

Newcomerstown, Ohio

America's Oldest



File Manufacturers

VIXEN

Trade Mark Reg. U. S. Pat. Off.

MILLED CURVED-TOOTH FILES

MADE ONLY
BY
HELLER



"Look—new Buick!"

THE GOOD RIGHT HAND OF INDUSTRY

Meet the Only
NEW Air
Compressor
Line *Since the War*



WORTHINGTON



WORTHINGTON PUMP AND MACHINERY CORPORATION
MERCHANDISING DIVISION
Harrison, New Jersey

The Good Right Hand of Industry



It's the Worthington Balanced Angle—the really modern-looking automotive air compressor that is as up-to-date *inside* as out!

See how this machine has been redesigned from the bottom up to give you everything we know you want in an air compressor—

You Get Smoother Performance because the V-type cylinder arrangement gives better running balance and faster cooling.

You Get Higher Efficiency because the isolated cylinders have 35% more heat radiating surface than in-line type; the aluminum heads release heat faster than cast-iron; and the high-speed fan throws 6 times as much air across the cylinders.

You Get Lower Maintenance because the valves are exclusive Worthington Feather* Valves; lubrication is controlled; bearings are famous Timken roller bearings, including oversize main bearings.

You Get Longer Life because the pistons in each stage, though different in size, *weigh alike*, reducing vibration; crankshaft is drop-forged steel with integral counterweights; bearing pressures and piston speed are low.

So—when you buy an air compressor—remember that the *oldest* name in air compressors—*Worthington*—is on the newest air compressor—Worthington Balanced Angle.

Order from your jobber.

*Reg. U. S. Pat. Off.

MAIL COUPON FOR FREE BULLETIN

Worthington Pump and Machinery Corp.
Merchandising Div.
Harrison, New Jersey

Send bulletin on Worthington Balanced Angle Air Compressor.

Name.....

Company.....

Address.....

PCR 94

MOTOR AGE, July, 1949



Can Your Wife "REBAKE" BISCUITS WITHOUT BURNING THEM?

● The biscuits are nice and fluffy, done to a golden brown. Now your wife drops a fresh dab of dough on each, puts 'em back in the oven, and hopes to bake those fresh dabs just right without burning the biscuits. You wanta bet she can do it? Of course not! And you can't do it with inner tubes, either.

BOWES "Seal Fast" Chemical Process TIRE AND TUBE REPAIR

avoids all chance of scorching the tube, because there's no baking. What's more, the place where a Bowes patch is applied becomes actually the *strongest part of the tube*. Those are advantages to your customer. The advantages to *you* are that: (1) you give your customers *better* tube repairs the Bowes way; (2) it takes much less of your time and effort—and—surely, time means money to you. Your Bowes distributor will gladly demonstrate the difference . . . and show you how Bowes "Seal Fast" *Chemical Process* Tube Repairs increase your profits!

THERE'S PROFIT IN THE BOWES LINE!

BOWES



Bowes dealers don't sell everything a motorist needs . . . but they do sell the fast-moving, profitable items . . . with the backing of a tremendous advertising campaign at no cost to them. Get the facts about the Bowes system!

**BOWES "SEAL FAST" CORPORATION
INDIANAPOLIS 7, INDIANA**

Tommy Makes A Friend for Pop

Continued from Page 51

to get the tail-pipe and when he came back Bert was busy in sober conversation with his wife. Tommy went right to work and soon had the new pipe and muffler installed.

"Back'er out," he called. "And be off for the wide open spaces." As Bert backed out he saw Tommy standing by the pump.

"Now can I fill'er up?" he grinned. Bert's smile was half-hearted, and as Tommy filled the tank he was trying to imagine what was wrong. He walked back to the window on the driver's side.

"How about letting me put this one on the books until the first of the month?" he offered. "There's no sense in starting off on a vacation short of cash."

Bert flashed Tommy a relieved smile. "As a matter of fact it would leave me awful short. I don't like to carry much cash on a camping trip."

"We'll be glad to get your name on the books," Tommy grinned back. "It's strictly business."

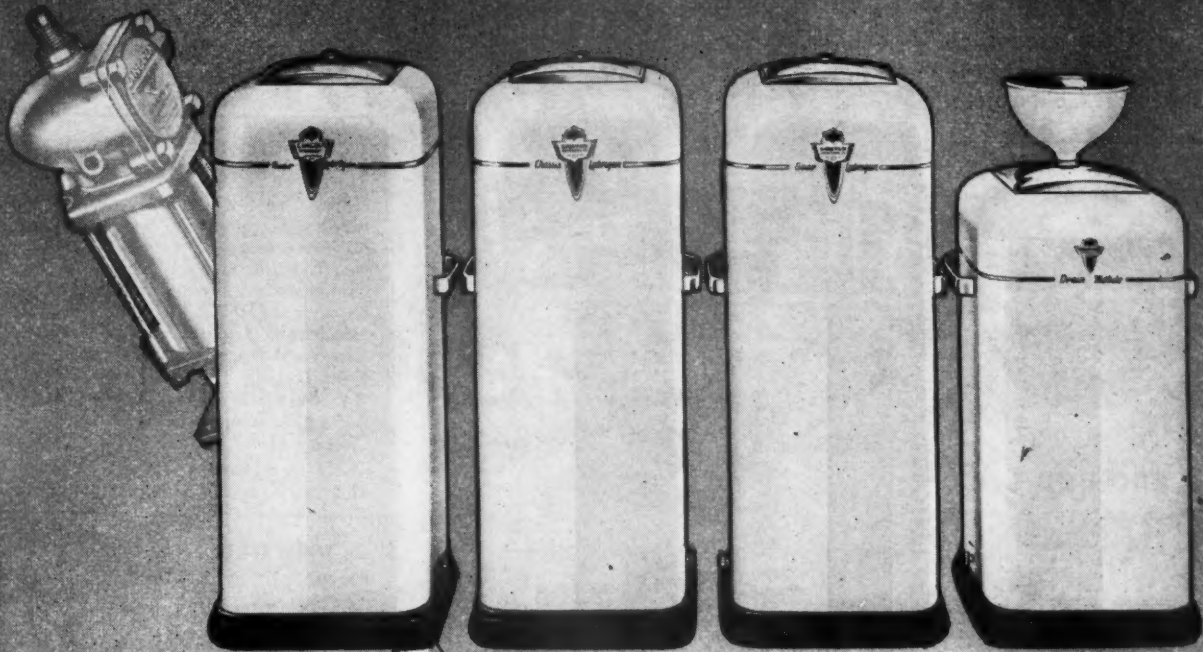
But the smiles on the faces of the whole Dawson family proved that this "strictly business" deal had made more friends for Pop O'Neill's Repair Shop.

Parts Sales Off

Automobile manufacturers report that parts sales this year are running from 8 to 12 per cent behind last year on the average. The companies have been actively working with dealers during the first four months of this year helping them to balance inventories. They point out that there is little need for heavy stocks now that the material shortage is over and that since there are no refunds on inventories if prices are reduced, it is to the dealer's advantage to keep his stock balanced with his needs and to avoid heavy inventories, especially on slow moving parts. General price cuts are not expected, but undoubtedly there will be some items that will be reduced, especially those related closely to raw material prices.

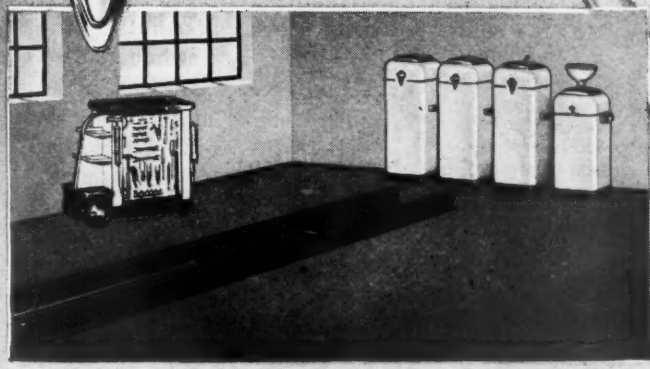
Lincoln

INDIVIDUAL CABINET UNITS



Style Engineered

for Merchandising Automotive Lubrication



Lincoln Individual Cabinet Units bring you the finest lubricating equipment obtainable. Styled with eye appeal that creates confidence... Engineered to provide fast, efficient service that will build profitable lubrication business. All air operated cabinet units are equipped with the famous Lincoln Lubricant Pump—the pump that has built an enviable and unmatched record of proven performance—your positive guarantee of efficient long life, trouble-free operation.

Your Lincoln Wholesaler Will Give You Complete Information.

• • • • • **PIONEER BUILDERS**



BULLNECK Surface Check Grease
Fitting... the modern fitting with
the ball in the top.



LUBRICATING EQUIPMENT • • • • •

LINCOLN ENGINEERING COMPANY • 5710 NATURAL BRIDGE AVE., ST. LOUIS 20, MO.

MOTOR AGE, July, 1949

New Reo Engine

Reo Motors, Inc. has announced production of an interesting new 6 cylinder 331 cu. in. engine. They plan to produce two additional models, a 292 cu. in. and a 255 cu. in. later. Basic design is of overhead valve type incorporating wet cylinder liners. Interchangeability of parts and components has been carried to a remarkable degree.

Bore and stroke are both 4 1/8 in. Torsional damping is by Houde viscous vibration damper, using Silicone fluid.

The cylinder assembly starts with the wet sleeve which is inserted with light pressure into the pilots at the upper and lower ends of the block. The water seal at the lower end is provided by two Neoprene

rings fitted into grooves in the sleeve. Sleeves are castings made of an alloy iron composition containing chromium, molybdenum, and copper. Hardness ranges from 229 to 269 Brinell as cast.

Piston is of Lo-Ex aluminum alloy and bronze-plated to reduce scuffing at break-in. It is fitted with two compression rings and an oil ring above the piston pin and an additional oil control ring below the pin. Compression rings are 3/32



Since 1933
TRUCUT
Equipment

...and you Get
EXTRA PROFITS
with this
NEW MODEL PRESS!



Removing a generator pulley, using Hanging Puller Bars and Pulley Puller Plates. May be used for many other applications.



Removing gear from shaft, using Hanging Puller Bars only.



Pole Shoe Expander Unit in use. Pole shoe pieces are forced tightly against housing while screw is removed or inserted.



BUILD up your electrical repair department . . . handle starter and generator work profitably . . . with this TRUCUT Press and Attachments.

Yes, make *extra* profits on time-consuming jobs. The TRUCUT Press handles them quickly, easily, without damage to parts.

Attachments are designed for starter-generator work . . . for removing pulleys and gears, expanding pole shoe pieces, extracting pole shoe screws, straightening shafts . . . and for numerous other general purpose jobs in which your time is worth money.

"TOPS" in efficiency, this Press is available both in bench and floor models . . . by the makers of famous TRUCUT Armature Lathes. The TRUCUT name . . . the 15 year TRUCUT record in the auto repair equipment field . . . is your guarantee of satisfaction and greater profits.

Mail the Coupon today!

FRANK N. WOOD CO.
... SINCE 1933

TRUCUT

344 W. MAIN STREET
WAUKESHA, WIS., U. S. A.

PACIFIC COAST ADDRESS: 1330 W. OLYMPIC BLVD., LOS ANGELES 15, CALIF.

FRANK N. WOOD CO., WAUKESHA, WIS.-7MP

Gentlemen: Please send me, without obligation, your latest catalog on TRUCUT Equipment.

Name of Firm.....

Individual.....

Address.....

City.....Zone.....State.....

CONDENSED MECHANICAL SPECIFICATIONS

Bore	4 1/8 in.
Stroke	4 1/8 in.
Displacement	331 cu. in.
No. Cylinders	6
Compression Ratio	6.4 to 1
Governed HP*	140 @ 3200 rpm
Maximum Torque*	264 @ 1000 rpm
Governed Speed	3200 rpm
Fuel Rating	75 octane
No. Main Bearings	7
Lube Oil Sump Capacity (Less Filter)	8 qt.

* These values given without fan and muffler.

in. wide, oil rings 3/16 in. wide. The piston pin is full floating and has a concave machined dome. Since in this engine design the block and head assembly are interchangeable for all models, control of clearance volume is effected entirely by variations in the piston dome. On the 331 model the clearance volume is controlled by the concave dome; on the 292 the piston head will be flat; and on the 255 the dome will be convex.

Connecting rods are interchangeable for all models. They are fitted with a bronze bushing at the small end, and an interchangeable precision type, steel-back, copper-lead alloy bearing at the crank end.

Both the piston and rod are machined to precise tolerances, particularly with respect to bore centers on the rod and the dimension from the center of the pin to the flat of the dome on the piston. Accurate control of these dimensions is essential to the control of clearance volume. In addition, both the rod and piston are made to common weights so as to dispense with selective fitting at assembly. This feature also simplifies the field maintenance problem immensely.

Coming to the crankshaft assembly, the shaft is of seven-bearing
(Continued on page 98)

IT HAS POCKETBOOK APPEAL

NOR'WAY pleases motorists who want to economize, because its price is low, and because . . .



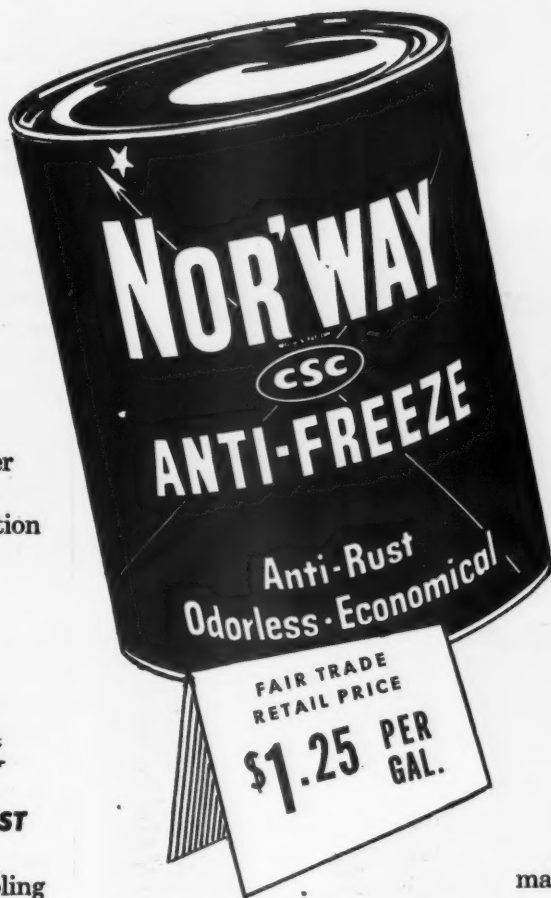
IT GOES A LONG WAY

Its extra strength over other types of anti-freeze gives motorists the most protection at the lowest cost.



HAS A 5-WAY ANTI-RUST

Its anti-rust ingredients protect all metals of a cooling system against corrosion.



IT LASTS A LONG TIME

A special ingredient reduces evaporation. Will not boil away at normal engine temperatures, or leak from a water-tight cooling system.



IT IS PRACTICALLY ODORLESS

NOR'WAY has no disagreeable odor at any time. Also has a special ingredient to reveal tampering.



BACKED BY CSC

—a fine chemical company, makers of hundreds of reputable chemical products.

It will please EVERYBODY!

NOR'WAY® is a methanol-type anti-freeze that will make good with everybody. You can safely push it with all your might, because it will make friends for itself and for YOU, wherever it goes.

*Reg. U.S. Pat. Off.

A WORTHY COMPANION TO

PEAK®

Permanent-Type Anti-Freeze



COMMERCIAL SOLVENTS CORPORATION

SPECIALTIES DIVISION • 17 EAST 42nd STREET, NEW YORK 17, N. Y. • MAKERS OF FAMOUS NOR'WAY AUTOMOTIVE PRODUCTS

MOTOR AGE, July, 1949

New Reo Engine

Continued from page 96

type with integral counterweights and Tocco-hardened journals and pins. It is of interest that the shaft is dynamically balanced to a tolerance of $\frac{1}{4}$ -oz. in. All main bearings are of precision type, steel-back, with copper-lead bearing alloy. Main bearing caps also are alike in most respects. Such interchangeability is made possible by the adop-

tion of separate thrust washer at the front end instead of using the conventional main thrust bearing at the rear end. The thrust washer is of bronze, of semi-circular form, fitting into a machined surface in the block face at the front bearing. The crankshaft has drilled oil passages in conventional fashion for pressure lubrication. It is of great interest to the user that no shims or adjusting means are required to control end-play since the close control of tolerances on the crankshaft

and block takes care of this feature automatically.

Among the other unique features of the crankshaft line are: the adoption of the now well-known Houde viscous vibration damper; and the use of the familiar one-piece assembly Neoprene oil seals at the front and rear. The rear oil seal is particularly interesting because of its one-piece construction which is made possible by mounting the seal on the O.D. of the small diameter crankshaft flange.

The camshaft is of cast alloy and mounted in 4 bearings. The cam base circle is $1\frac{1}{2}$ in. in diameter, cam ramp opening being 0.010 in. at 20 deg., cam ramp closing 0.015 in. at 30 deg.

Timing gear drive is by means of a steel gear on the crankshaft end and an aluminum alloy gear on the camshaft meshing with it.

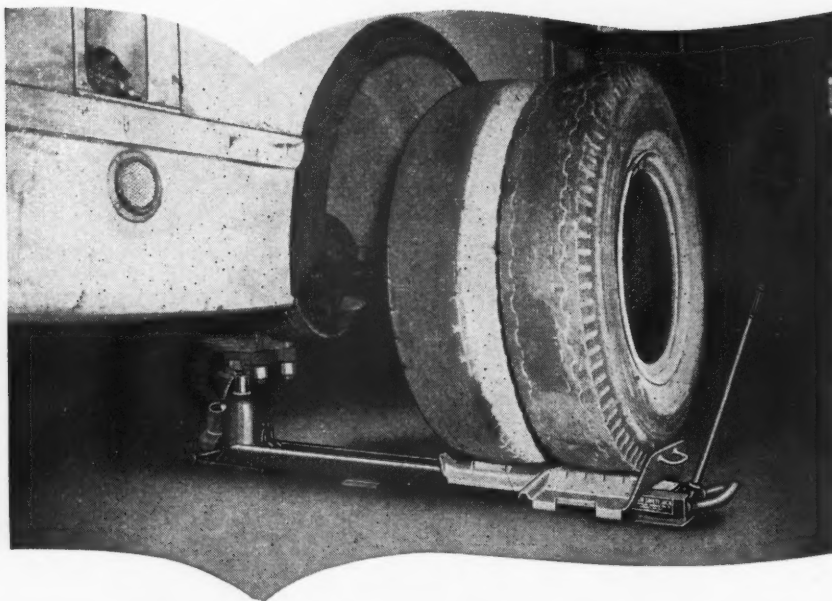
Intake valves are conventional, made of Silchrome and seating directly in the seat machined in the head metal. Incidentally, a Neoprene washer is provided at the spring valve end to prevent leakage of oil from the upper chamber into the valve guide. Valve guides are of alloy iron for durability.

On the exhaust side, valves are of sodium-cooled type and faced either with Eatonite or Stellite, depending upon the source of supply. At the same time an exhaust valve seat insert is employed and this is Eatonite- or Stellite-faced.

Intake valve head diameter is 2 in.; throat diameter, $1\frac{3}{4}$ in. Intake seat angle is 30 deg. and intake lift, 0.420 in. Intake timing—open 5 deg. BTDC, close 55 deg. ABDC. Exhaust head diameter is 1.800 in., throat diameter, $1\frac{5}{8}$ in. The exhaust seat angle is 30 deg., lift, 0.420 in. Exhaust timing—open 50 deg. BBDC, close 10 deg. ATDC.

The ignition system consists of 6-volt heavy duty units of latest type supplied by Delco-Remy. The heavy duty distributor is driven through a flexible coupling at the upper end of the shaft, its function being to absorb torsional vibrations from the camshaft line. The distributor cap incorporates a dust shield for weatherproofness. Champion J-6, 14 mm spark plugs are used, with a weatherproof cover.

ONE MAN Removes Dual Wheels in **ONE OPERATION** with the **DRUM** TWIN-DOLLY *Safety JACK*



NO

**Dangerous Greased Plates
Cumbersome, Expensive Dollies
Crawling Under Trucks or Buses
Heavy Wheels to Lift**

Get faster brake—bearing—wheel service with the DRUM SAFETY JACK. Available in 12-Ton single-dolly and twin-dolly models. Approved by leading fleet and bus operators.

MAIL COUPON TODAY!



THE CLEVELAND PNEUMATIC TOOL CO.

3777 EAST 77th STREET, CLEVELAND 5, OHIO

We would like to know more about the DRUM SAFETY JACK.

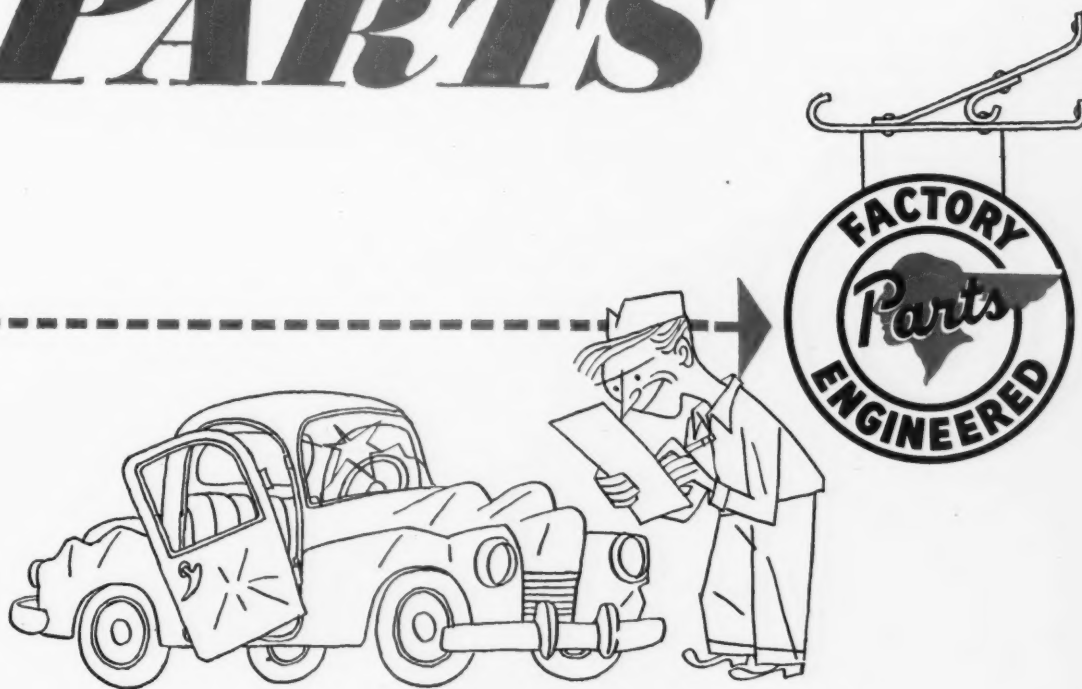
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Address

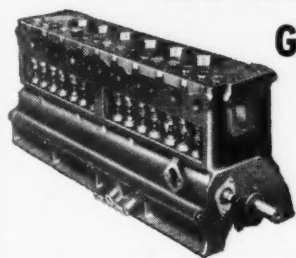
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INDEPENDENT REPAIRMEN COUNT ON...

PONTIAC PARTS



We'll figure it for you!



**New Low Price!
Greater
Profit!**

Pontiac's "Power Package"—the heart of either great Pontiac engine—is now available to you at a new low price. You profit *two ways*—greater profit margin—and great savings in time and work. Check your Pontiac Dealer today!

Estimating major repair work is a tricky job.

If you figure too low, you lose your profit. If you figure too high, you lose the job.

But there's one way to get a correct estimate when a particularly difficult Pontiac repair job enters your shop: call your nearby Pontiac dealer and one of his experts will be glad to assist you in estimating the cost—and supply you with Pontiac Factory-Engineered Parts at a liberal discount. It's just another Pontiac Dealer service for independent repairmen.

JUST CALL YOUR LOCAL PONTIAC DEALER!



Legally Speaking

Excessive License Tax Held Unconstitutional

Where the law requires an excessive fee or tax for a license to do business, the law is void, declares the Supreme Court of Arkansas.

A law of that state attempted to regulate the solicitation of

photographic work by photographers in towns where they did not have a place of business. The law required that the photographic firm pay a tax or fee of \$150 a year and \$25 for each salesman or solicitor. It also provided for the payment of a tax of \$10 for each hundred pictures taken. This had to be paid weekly.



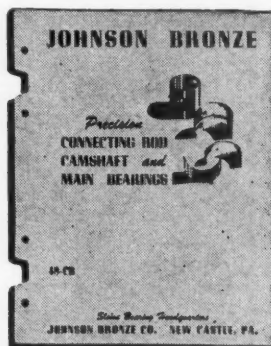
● JOHNSON BEARINGS

are exactly like those furnished leading car and truck builders for their original equipment . . . and comprise a complete line. Consequently, from this one source you can service all makes with assured satisfaction. Whatever the job, the Johnson Bearings are correct in design, alloy and tolerance.

Johnson Bronze
SLEEVE BEARING HEADQUARTERS
455 SOUTH MILL STREET • NEW CASTLE, PA.

Send for the

new Johnson Bronze catalog which lists and describes the complete bearing and bushing service for cars and trucks. Write today for your free copy.



A salesman for a photographic firm doing business in twenty states was arrested in an Arkansas town and convicted of soliciting photographic work without having paid the required taxes. His conviction was set aside by the court on the ground that the law imposing these taxes was unconstitutional.

Conceding that the legislature has the power to impose a tax or license fee on the privilege of doing business either for revenue or for the purpose of controlling the business, the Supreme Court of Arkansas pointed out that that power cannot be used to destroy rights of citizens contrary to the principles of freedom and justice.

"Does this law, under the guise of a revenue measure, disclose a purpose to prohibit rather than control competition in the photographic business?" the court asked.

Answering its own question, the court continued:

While a wide latitude must be given to legislative discretion, there comes a point where the license tax is so palpably, so grossly excessive that courts cannot close their eyes to the fact that such legislation is either taxation under the guise of regulation or enacted in restraint of trade and for the purpose of prohibiting the conduct of the business.

"The law contains a direction to prosecuting attorneys to prosecute all violations. Since the only violation would be failure to pay the license fees and taxes, the law is essentially a blockade against competition and therefore unconstitutional." (*McGriff vs. State*, 204 Southwestern Reporter, second series, 885.)

"Paid in Full" Offers Open to Dispute

Sometimes a customer in what he considers a smart way to get a cut price, will offer the repairman a check for less than the true amount and mark the check, "In full payment" or with some similar notation.

If there's no argument about

(Continued on page 102)

TRIPLEX

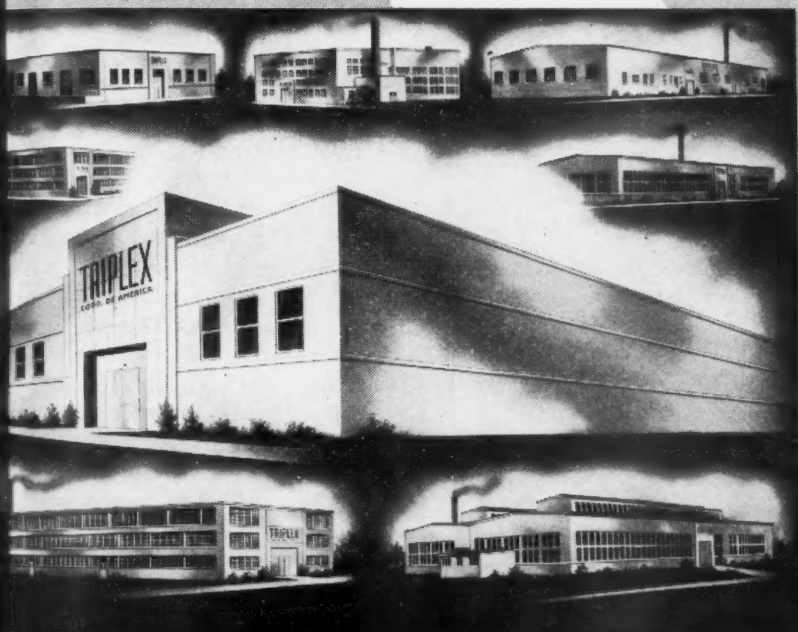
MOVES...

lock, stock & barrel

to PUEBLO COLORADO

WORLD'S LARGEST PISTON MANUFACTURER

CHICAGO



The New Home of
TRIPLEX
OCCUPIES 10 PLANTS with
over 150,000 SQUARE FEET

Pictured at left are eight of the ten
Triplex buildings comprising administra-
tive offices, factory and warehouses.

Meteoric Rise Makes Move Necessary

Since the war, Triplex has produced over 15,000,000 pistons. The demand by the automotive replacement market has grown to such proportions that additional space was necessary.

Entire Industry to Benefit

The new home, four times the size of its former Chicago plant, will insure a constant flow of precision-made Replacement Pistons to the thousands upon thousands of garages, repair shops and service outlets who look to Triplex Aluminum Pistons for absolute dependability.

TRIPLEX PISTONS



TRIPLEX CORP. of AMERICA

PUEBLO

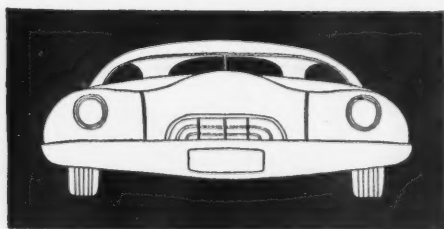


The Honorable
Governor
Leo K. Keady
welcomes
Triplex to
Pueblo,
Colorado



50 Years of Progress with Kester Solder

*In the automotive industry 50 years ago,
a great many parts were made of brass
or copper. Headlamps and other lights,
intake manifolds, radiators, horns,
tubing, conduits, and gasoline
tanks were all soldered.*



THE LEADER IN THE FIELD

Today, Kester Acid-Core Solder is a
necessity for fast, efficient repairs even
as it was in those early days.
Insist upon it from your jobber.

Standard for the Automotive Trade Since 1899

Kester soldering fluxes . . . salts, paste, and
liquid . . . are available in several handy-to-
use units. Order them from your jobber today.

KESTER SOLDER COMPANY

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Factories Also at

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**KESTER
SOLDER**

"Paid in Full" Offers Open to Dispute

Continued from Page 100

the amount of the bill and no dispute about it, that "paid in full" business has no effect. The Supreme Court of Iowa recently put it this way:

"Where the debtor pays what in law he is bound to pay and what he admits he owes, such payment by the debtor and its acceptance by the creditor, even though tendered as a payment in full of a larger indebtedness, do not operate as an accord and satisfaction of the entire indebtedness, because there is no consideration therefor."

In other words, he cannot pay an undisputed bill of \$100 by a check for \$75 marked "In full payment."

But note that word "undisputed" carefully. If there is a real dispute about the amount of the bill and the debtor offers to settle the argument by a "full payment" check for a smaller amount, it stays settled if the creditor accepts that check. He cannot thereafter collect the balance he feels entitled to. (*Kellogg vs. Iowa State*, 29 *Northwestern Reporter*, second series, 559.)

Statute of Frauds Applies In Lease of Building

A Missouri businessman, interested in obtaining a location for his business, approached the owner of a building which he felt was suitable for his purpose. After discussing terms, rent and other details, the owner agreed to lease the building to him for a period of three years for an agreed upon rent. For the owner's protection the businessman was to deposit securities with a named bank to secure the prompt payment of the rent as it fell due. He was also to have the lease drawn by his attorney.

Pursuant to this oral agreement the businessman bought government bonds which he intended to deposit with the bank

(Continued on page 104)

ENGINEERING

B-W

PRODUCTION

19

of the 20 makes
of passenger cars
use essential
parts engineered
and produced by
BORG-WARNER

THESE UNITS FORM BORG-WARNER. Executive Offices, Chicago: BORG & BECK • BORG-WARNER INTERNATIONAL • BORG-WARNER SERVICE PARTS • CALUMET STEEL • DETROIT GEAR • DETROIT VAPOR STOVE • FRANKLIN STEEL • INGERSOLL STEEL • LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON • MARVEL-SCHLEBLER CARBURETOR • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD. • NORGE • NORGE-HEAT • NORGE MACHINE PRODUCTS • PESCO PRODUCTS • ROCKFORD CLUTCH • SPRING DIVISION • SUPERIOR SHEET STEEL DIVISION • WARNER AUTOMOTIVE PARTS • WARNER GEAR • WARNER GEAR CO., LTD.

Statute of Frauds . . . Continued from Page 102

and had his attorney draw the lease. After he signed the lease his attorney was to present it to the owner for signature.

The attorney telephoned the owner to make an appointment for the purpose and was told that "the deal was off."

The businessman then sued the owner to require him to execute

the lease in accordance with the oral agreement. The owner did not deny the agreement. In fact, he didn't have to. The Missouri court said the deal couldn't be enforced because it wasn't in writing.

That was because in Missouri and practically all other states there's a law called the Statute

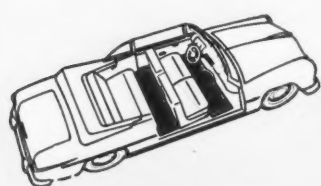
of Frauds, which says that an agreement to sell real estate, or to lease it for more than one year, cannot be enforced unless it is in writing.

The businessman's attorney argued that the statute of frauds didn't apply because there was not an actual lease, but an oral contract to make a lease—an entirely different thing.

But the Missouri court couldn't see it that way and said:

"To hold that an oral agreement to make a lease is enforceable, while an oral lease is not enforceable, would in most instances do away with the very object and purpose of the statute of frauds. Parties having in contemplation a lease contract are and should be privileged to negotiate and freely discuss the terms and conditions that each will agree to, and neither be bound by their tentative agreements until they are placed in writing and signed. Either party, in view of the statute of frauds, may later repudiate the oral agreement and refuse to enter into a contract. Such is the effect of the statute of frauds."

To put it in a nutshell: when you're dealing with real estate, it's only talk until you have it in writing. (*Yacobian vs. Carson*, 205 Southwestern Reporter, second series, 921.)



Sells on Sight



MINUTEMAT

JEFFY FLOOR MAT INSTALLATION

Molded to Fit the Center Hump of Any Car



WRITE FOR DETAILS.

DISPLAY CARTON
HOLDS 6 MINUTEMAT BOXES

ADVERTISED IN THE

Post

Doan MANUFACTURING CORP.
CLEVELAND 12, OHIO

★ INSTALLED IN A JIFFY. Fits any car front and rear. No fitting necessary. Just trim ends to desired size. Stays in position.

★ PROTECTS EXPENSIVE CARPETING against dirt, grease and wear. To clean, simply remove Minutemat, shake out and replace in position.

★ SELLS ON SIGHT. Every car owner a prospect. Instant appeal results in fast turnover, quick profits.

★ AVAILABLE IN BLACK OR TAUPE
TWO USED PER CAR.

DISPLAY
MERCHANDISER
For Floor Mats
and Pedal Pads

Holds 18 floor mats.
36 pairs pedal pads.
19 accelerator
pedals. Rolls
on wheels.



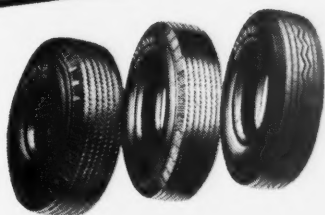
Patent Pending



"Scrape your pants, too!"

**ALL INLAND PASSENGER TIRES
ARE NOW MADE WITH
COLD RUBBER***

sensational new rubber your customers
are reading about, talking about, and
demanding in the tires they buy today.



* With these new Inland Tires
Inland Dealers are now giving
their customers an average Mileage
Bonus 30% above that obtained in the
best pre-war natural rubber tires.
Mail this coupon today!

INLAND

INLAND RUBBER CORPORATION
146 W. 27th St., Dept. M47, Chicago 16, Ill.

I want to hear more about Inland Cold Rubber Tires and
the new Inland Franchise Opportunity.

Name _____

Address _____

City _____ Zone _____ State _____

County _____

ager, United Motors Service, was elected president of the Council, succeeding Walter Kirkpatrick, manager of advertising and sales promotion, Wilkening Manufacturing Co., who had served for two one-year terms. Russell Conley, advertising manager, R. M. Hollingshead Corp., Whiz Automotive Division, was moved up from trea-

surer to vice president, and H. C. Mohr, advertising and sales promotion manager, Packard Electric Division of General Motors Corp., was elected treasurer.

Charles H. LeFevre, advertising manager, Sealed Power Corp., was named corresponding secretary, and Edward F. Todd, advertising manager, The Imperial Brass Mfg. Co.,

was chosen for the new post of recording secretary.

Members elected to the Board of Governors were: J. D. Hershey, advertising director, Dayton Rubber Mfg. Co.; C. B. Riddick, Koppers Co., Inc.; T. Faxon Hall, sales promotion manager, Walker Mfg. Co., of Wisconsin; Lester C. Dobrunz, sales promotion manager, Wagner Electric Co.; and Samuel R. Robinson, advertising manager, United States Asbestos Division of Raybestos-Manhattan, Inc. All men were elected to two year terms of office.

In his comments preliminary to the open discussion on methods of aiding wholesalers and the service trade in their marketing efforts, Mr. SENDERFER stated, "It must be borne in mind that with rapidly increasing competitive forces in action, we face a man sized job in helping the jobber to hold his volume."

Dividing manufacturer's efforts into three phases—assisting the Jobber, educating the Dealer and educating the Consumer, Mr. SENDERFER listed the following as the most important in the first phase: (a) Easy-to-use catalogs. (b) Adequate training for jobber salesmen and counter men. (c) Factory representative "show how"—inspirational guidance and training in selling by demonstrations from factory representatives. (d) Follow through to see that advertising and sales material furnished is used properly. (e) Proper identification of jobber as an authorized representative on line.

Among other panel discussions in the three day session were: "N.I.A.A. Readership Study," led by Jack Apsey, Black & Decker Mfg. Co.; "Trade Paper Survey," led by Don Hague, E. I. du Pont de Nemours & Co., Inc.; "Advertising Budget Analysis," led by Lester Dobrunz, Wagner Electric Co.; "Trade Shows," led by R. E. Conley, R. M. Hollingshead Corp.; "Report on Wholesaler Direct Mail Addressing and List Set-Up," by T. Faxon Hall, Walker Mfg. Co., of Wisconsin, and "Dealers' View Point on Service Shop Manuals," led by Albert Joseph, The AP Parts Corp.

"Public Relations and Publicity,"
(Continued on page 108)

CENTRAL MIKE SAYS:

"FIT IT RIGHT WITH A CENTRAL MIKE!"



SETS OF OUTSIDE MICROMETERS
In ranges from 0 to 3", 0 to 4", and 0 to 6". With or without ratchets and/or locknuts. With or without standards. All Micrometers can also be supplied individually if desired.
ASK FOR CATALOG



REMOTE CONTROL
No. RC 100. For use with Inside Micrometers. Permits internal measurements of undercuts which otherwise would be inaccessible.
ASK FOR CATALOG



MAIN JOURNAL MICROMETER No. 510 MBM. Range 0 to 5". Furnished with standard. For measuring crankshaft journal diameter without removing crankshaft from engine. Also useful for measuring many other parts in the automotive shop.
ASK FOR CATALOG



INSIDE MICROMETERS
Ranges 1 1/2" to 8" and 1 1/2" to 12".
ASK FOR CATALOG



CONNECTING ROD JOURNAL MICROMETER No. 350 RL. Range 1 1/2" to 2 1/2". Furnished with ratchet, locknut and 2" standard. Graduations on under side of barrel facilitate reading dimensions when tool is in measuring position.
ASK FOR CATALOG

THE CENTRAL TOOL COMPANY
462 WELLINGTON AVENUE
CRANSTON 10, RHODE ISLAND

CENTRAL
Certified Accuracy
MICROMETERS

Largest Selling Micrometers in the Automotive Field, throughout the World.



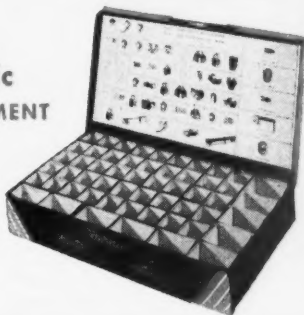
YOU CAN DO MORE BRAKE BUSINESS...with

WAGNER LOCKHEED HYDRAULIC BRAKE SERVICE MERCHANDISERS

Put Wagner Cabinet Merchandisers to work in your shop. These "silent salesmen" will help you to sell more brake service. They display a compact but complete stock of genuine Wagner parts . . . they enable you to give your customers faster, more efficient service . . . they are easy to keep complete and up-to-date. You can depend upon Wagner quality because . . . Wagner products are used as original equipment by automobile manufacturers.

WAGNER Lockheed Hydraulic BRAKE FITTING ASSORTMENT FL-33

An assortment of hydraulic brake line connectors for popular cars and trucks. In attractive metal box that fits any Wagner cabinet.



WAGNER Lockheed Hydraulic BRAKE HOSE FL-410

Service all popular cars and trucks. In attractive metal Display Cabinet.



WAGNER Stop-Lite Switch MERCHANDISER

FL-334
Calls attention to a neglected item. Complete, handy coverage that builds added profits in stop light repair service.

WAGNER HYDRAULIC BRAKE REPAIR KITS FL-275

Assortment of replacement parts for master cylinders and wheel cylinders for Ford, Chevrolet and Plymouth.

FL-405 (not illustrated)

Assortment of replacement parts for master cylinders and wheel cylinders for all popular makes and models of cars and trucks.



REMEMBER YOUR 3-R's . . .

RELINE with WAGNER CoMaX BRAKE LINING
REPAIR with WAGNER LOCKHEED HYDRAULIC BRAKE PARTS
REFILL with WAGNER LOCKHEED HYDRAULIC BRAKE FLUID

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WAGNER Four-Drawer Merchandiser FL-40

Exceptionally wide coverage of fast moving parts needed for passenger car and light truck brake repair, conveniently stocked in one compact cabinet.



LOCKHEED HYDRAULIC BRAKE PARTS and FLUID - NoRoL
CoMaX BRAKE LINING - AIR BRAKES - TACHOGRAPHS
ELECTRIC MOTORS - TRANSFORMERS - INDUSTRIAL BRAKES

Ask for the new Brake Service Wall Poster Form AU-354. Free on request.

was the topic of a discussion led by Richard Carr, Koppers Co., Inc., in which the current aspects of the subject were covered from the standpoint of (a) manufacturers, (b) wholesalers, (c) repair shops.

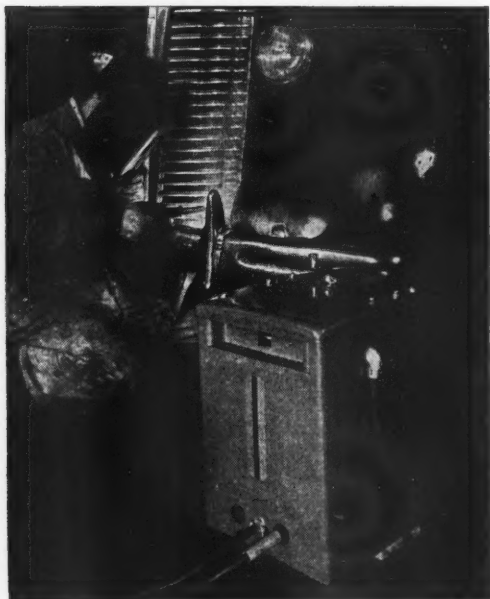
"Packaging and Package Inserts," a discussion led by Duane Jones, United Motors Service, covered packaging in the automotive service

industries from a variety of standpoints: utility (protection of content), display (advertising and selling value) and suitability for stocking, shelf space, packing and shipping.

A discussion on progress of the Industry Wide Program was led by C. C. Tapscott, McQuay-Norris Mfg. Co., who related the latest de-

velopments in the automotive service industry's proposed promotional effort. Also a special committee submitted a report on a suggested new name for the Automotive Aftermarket Industry.

The report of the "Training and Sales Films" committee, submitted by Gene Robers, Weatherhead Co., showed that over one-third of the council members are using films of this type in their sales promotional work.



want
an easy-
working
ELECTRODE?
then try this
swell
AIRCO No. 90...

it's ideal for all-around garage work
where good weld appearance is a **MUST!**

The Airco No. 90 is an all-position AC-DC shielded-arc mild steel electrode — ideal for use on all types of jobs around the garage involving the fabrication or repair of mild steel parts and equipment . . . and it is easy to use.

Ask your local Airco Dealer about Airco No. 90 today! Also ask him about his complete line of arc welding electrodes and machines — for either AC or DC application — that he can deliver immediately from stock.

In addition to this prompt service, your Authorized Airco Dealer offers you top quality merchandise, at lowest possible prices . . . so, get in touch with him today — he'll be only too glad to give you more information about Airco No. 90, as well as other welding products he has available.



This Emblem Identifies
Your Airco Dealer

AIR REDUCTION

Offices in Principal Cities

Plus A Nationwide Dealer Organization

Headquarters for Oxygen, Acetylene and Other Gases...Carbide...Gas Cutting Machines,
Gas Welding Apparatus and Supplies...Arc Welders, Electrodes and Accessories

Employer Held Responsible For Providing Help

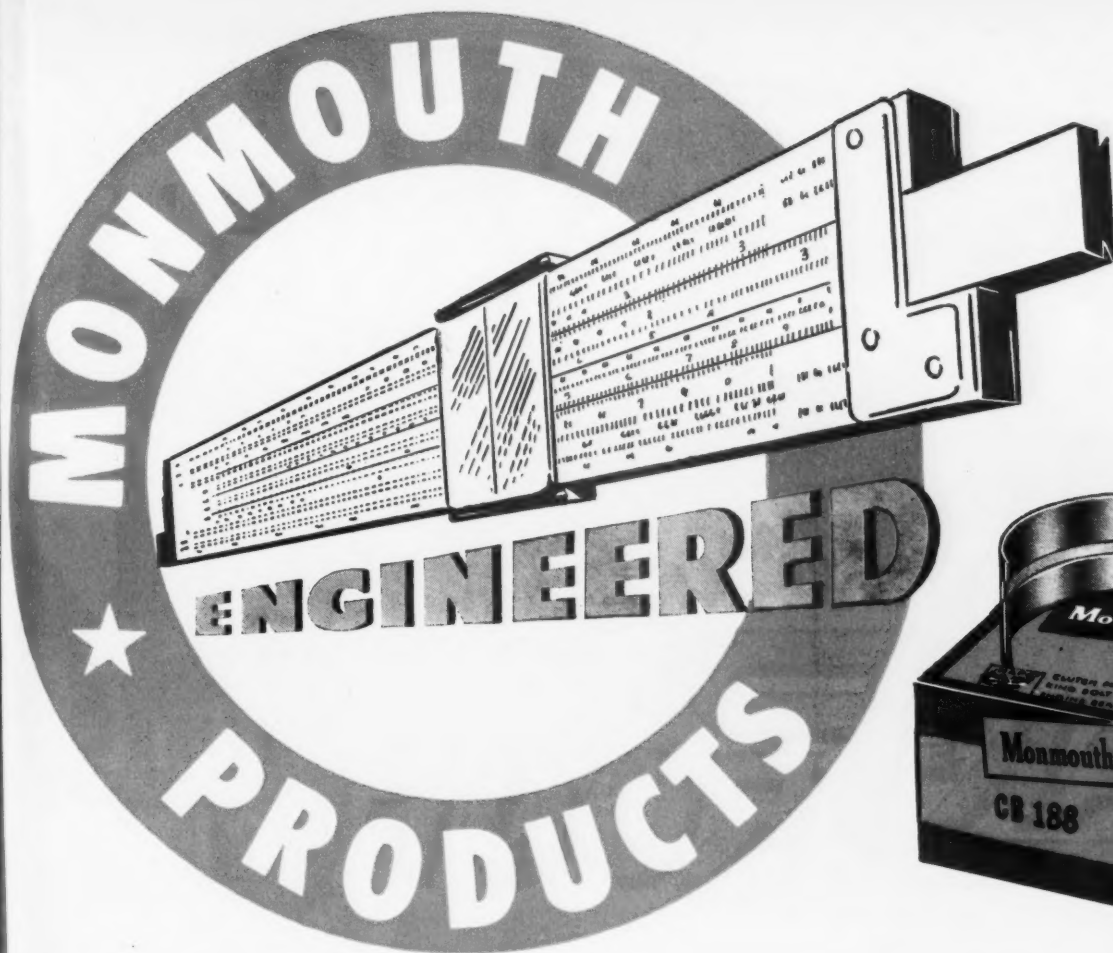
A Texas employee of a large company sued his employer for injuries incurred in the course of his employment. He had been hurt while doing alone a job to which he had been assigned. His contention was that the job was too much for one man and that his employer had failed to furnish him with needed help. It appeared, however, that he had gone ahead with the job alone without asking for assistance.

Discussing the duty of the employer to furnish sufficient help for a job, the Supreme Court of Texas said:

"The law imposes upon the employer the duty to exercise reasonable care in providing for an employee adequate help in the performance of work required of him.

"So far as the movements of employees may depend upon their own volition and are not in any way affected by the control of a superior, it is clear that there can be no recovery on the theory that the number of employees was temporarily inadequate at the time and place where the injury was received unless such inadequacy was known, actually or constructively, to the employer or his representative.

"The employer is not liable when sufficient help is nearby and available and the employee does the work alone without seeking or asking for assistance." (*Western Union vs. Coker*, 204 Southwestern Reporter, second series, 977.)



Millions of dollars in engineering research FREE!

MONMOUTH Replacement Bearings are made by Cleveland Graphite Bronze Company—in the world's largest, most modernly equipped engine bearing factory. Millions of dollars spent in engineering research on bearing problems by Graphite Bronze has resulted in world-wide acceptance of its products as tops—no dissenting opinion.

You can buy and use these same bearings, identical in design and construction with original equipment bearings, in your own

service work when you specify Monmouth—each bearing or set of bearings is specifically designed and engineered for the type of performance required of the motor in which installed.

Minute-Man service on Monmouth Bearings and chassis parts is provided by N.A.P.A. jobbers coast-to-coast.

When you can get the advantages of engineering research that leads the field why be satisfied with less? Specify Monmouth Bearings for perfect performance.

MONMOUTH PRODUCTS COMPANY, Cleveland 3, Ohio



Your N.A.P.A. Jobber is a Good Man to Know!

**FOR ENGINE BEARINGS
CLUTCH PLATES AND PARTS
CHASSIS PARTS**

Monmouth
Trade Mark *is the name*

Control "Blow-By"

GENUINE *Altinized*

LEAK-PROOF

REG. U. S. PAT. OFF.

PISTON
RINGS



Guaranteed
TO DO ALL **4**

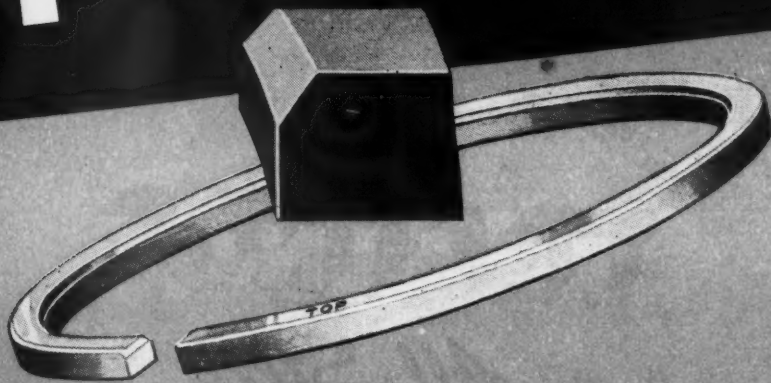
- 1** Keep oil down
- 2** Keep power up
- 3** Give smooth, new motor operation
- 4** Give longer life



LEAK-PROOF...FOR SATISFIED

and Keep Power Up

LOOK
AT THIS
TOP RING



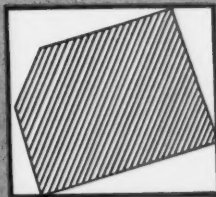
TORSION TIGHT FIRE RING . . . Known as a Fire Ring because it operates closest to the combustion chamber under intense heat from the explosion and the super-heated blow-by gases. It is the major Blow-By and primary Compression Ring in the LEAK-PROOF set.

IT CONTROLS "BLOW-BY"

THE LEAK-PROOF TORSION TIGHT FIRE RING

prevents blow-by because it operates on the torsion tension principle. It seals against blow-by in three places: 1.

Its accurately calculated taper face seals at the cylinder wall. 2. It seals against blow-by around the ring as its upper inside corner comes into contact with the top of the ring groove, and 3. Its lower inside corner with the bottom of the ring groove.



IT EARNED ITS REPUTATION

in aircraft engines all over the world. It is hailed by American and English engineering journals as a major piston ring development because of its efficiency.

IT RESISTS FRICTION WEAR . . . because it is made of Phosalloy and scuff proofed by Altinizing. Because it operates under extreme temperatures in the driest part of the cylinder, heat proofed material is necessary for proper performance.

IT RESISTS ACID ACTION WEAR . . .

because it is Altinized. Altinizing is an exclusive process developed by McQuay-Norris whereby a tin coating is electrically applied to the outer surface of the ring, increasing wear life 33⅓%.

McQUAY-NORRIS MANUFACTURING CO.
ST. LOUIS 10, MO.

JUST ANOTHER REASON WHY THE LEAK-PROOF SET IS YOUR BEST BET

D CUSTOMERS and BIGGER PROFITS!

ness in the bearing cups, as a loose bearing must be replaced. If the rollers should fall out of their cages, it will be necessary to wash all the parts with cleaning compound and blow them out with air. The best way to replace the rollers is to spread a little clean grease on the cups so that the rollers will remain in place while being reas-

sembled, otherwise they may drop out.

Examine the cross surfaces for grooves or ridges. Occasionally there will be signs of brinelling, when the rollers have worn impressions on the surface of the cross. This condition necessitates the replacement of the journal cross as well as the needle bearing. As the

rotten apple spoils the rest of the bushel, so can a "rotten" part cause the new ones to wear out. When replacing parts, it is not advisable to mix old parts with new, as excessive clearances and free play will cause wear, and will probably result in premature replacement.

Another part which should not be overlooked is the propeller shaft slip joint. The splines should be thoroughly cleaned and examined for wear or chipped surfaces. It is of interest to note that in some localities the state inspection rules provide for a careful inspection of the spline shaft as well as the universal joint on cars provided with the drive-shaft-mounted parking brake.

Before reassembling, all parts should be lubricated with a good grade of lubricant. If the cork grease retainers have become hardened or are leaking they should be replaced. Be sure to line up the arrows on the spline shaft, to maintain proper balance. Always use new snap rings.

Dodge Wayfarer

Becomes Available

Introduction of the Roadster Model mentioned earlier this year in the Dodge Wayfarer line and bearing a factory retail price in Detroit of \$1635, less federal and local taxes, is announced now that the unique body style is in production and being shipped to Dodge Dealers.

Mechanically it is powered by the same engine used in other Dodge models, together with fluid drive, cycle-bond brake linings, and other features. For maximum operating economy it has a special axle gear ratio of 3.73 to 1.

The Wayfarer roadster can be converted to a closed car in a matter of seconds, it is claimed, the driver simply reaching back to pull the hand-operated top into position. This is facilitated by the special aluminum construction of the top framework. Big one-piece clear plastic side windows, framed in bright aluminum, slip easily into sockets in the doors. When not in use they are stored in a special compartment behind the seat. Seat width is 58.7 in., said to be sufficient to carry three passengers in comfort.



TRAINOR

All Steel

HELPER SPRINGS

Trainor All-Steel Helper Springs are designed to fit any car or truck. Trainor Springs reduce road shock and ensure that extra payload capacity . . . are engineered for simple installation. All attaching parts are made of spring steel without breakable castings. Trainor Springs are individually Load Tested.

Passenger car and truck catalogues sent upon request. Write for complete price list.

BRANCHES

CINCINNATI TRAINOR SPRING CO
116 West Court Street
Cincinnati, Ohio

COLUMBUS TRAINOR SPRING CO
339 Cleveland Avenue
Columbus, Ohio

INDIANAPOLIS SPRING CORP.
830 West Washington Street
Indianapolis, Indiana

TRAINOR NATIONAL SPRING COMPANY

NEWCASTLE, INDIANA



Announcing...

a Great New **PACKARD** **LOW-TENSION** **Automotive Cable!**

TOUGHER!

LASTS LONGER!

SAFER!

**NO INCREASE
IN PRICE!**

A newly developed insulation, enclosed in Packard's well-known braid-and-lacquer exterior, makes this new Packard cable superior to all previous low-tension automotive cables. Rewiring jobs will now give *longer service with greater safety*—greater customer satisfaction—at *no increase in price!*

**SAME SIZE . . . SAME PRICE . . .
SAME TRADE NUMBERS**

The new cable is the same as the old in size, appearance and price. But—note this—it has **GREATER DIELECTRIC STRENGTH, GREATER RESISTANCE TO CHEMICALS, OILS, ABRASION, EXTREME TEMPERATURES,** and it **WILL NOT HARDEN AND CRACK.** Fire hazard is reduced because the insulation stands up longer and will not support combustion.

And, of utmost importance in the shop, the new cable **STRIPS EASILY!** Order from your regular Packard source, using same trade numbers as formerly.

Packard
REG. U.S. PAT. OFF.
TRADE MARK

Packard Electric Division, General Motors Corporation
Warren, Ohio



FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

FOUR GREASY DIRT REMOVAL JOBS...

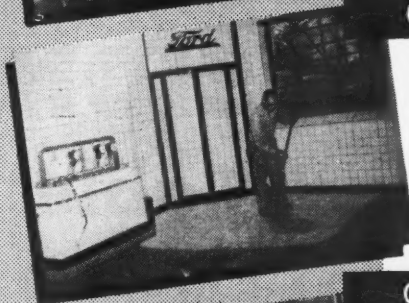
WHERE YOU WANT
MORE SPEED
AND LESS LABOR

***There's Nothing Better Than
MAGNUSOL on Every One!***



Cleaning Engine Blocks and Chassis

Spray on. Let soak. Rinse with water. That's the whole cleaning job. From start to finish it takes only a few minutes—and all surfaces are clean right down to the paint. Magnusol takes the cling out of all oily, greasy dirt.



Cleaning Very Oily Floors

Mix one part Magnusol with eight parts kerosene. Brush on. Let soak five minutes. Rinse off. Repeat for extremely greasy deposits around lifts. You don't have to use heat to get good results from Magnusol in any of its applications.



Cleaning Automotive Parts

Use Magnusol, one part to eight of kerosene or safety solvent in a still tank, or better still in a Magnus KOL-DIP TANK, with the extra compartment for Magnus 755 to remove hard, heat-bonded carbon deposits. Magnusol is safe for all metals, and does not attack paint.



Cleaning Car Bodies

Especially where they're extra greasy. No need to stock extra body washing materials. On light deposits, use one-half cupful of Magnusol in a pail of lukewarm water. On heavy oily body dirt, use a mix of one part Magnusol to six of kerosene. Brush on, rinse off with cold water. Magnusol is non-toxic and non-inflammable.

Write for Bulletin #21 and details of our Magnusol trial offer.

MAGNUS CHEMICAL COMPANY • 174 South Ave., Garwood, N. J.

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Service representatives in principal cities



IN THE AUTOMOTIVE FIELD IT'S

MAGNUS

CLEANERS • EQUIPMENT • METHODS

Good Undercoating

Brings Big Returns

Continued from Page 43

good care of it. The piece-work aspect of this phase of the undercoating operation is probably not nearly as important as simply offering sufficient income to the applicator to attract a careful, competent man.

The \$2.00 charge for "selling" is another part of the secret. Gerwig-Nelson is not leaving the selling of the job to chance. Both the dealership's staff of salesmen and the men in the garage are eligible for the \$2 bonus when they sell a customer on an undercoating job. As a result, everyone is on the lookout for a prospect, and it's a rare customer who passes through Gerwig-Nelson service without being introduced to the idea of an undercoating job.

In the show-room, two tables have been equipped with a manufacturer's undercoating demonstration unit—two metal panels suspended on a frame, with one panel undercoated and the other one merely painted. Rapping the two panels with a small hammer results in a banging noise on one panel and a deadened tap on the other—and gives the customers a convincing demonstration of how an undercoating sound-deadens the metal. "This is often the clincher in making a sale," Gerwig commented. He added that most sales take less than ten minutes.

In that time, the customer is told the purposes of autobody undercoating, the reason why undercoating is particularly valuable in that community, and the value of a thorough, adequate spraying job by an experienced applicator.

Objectives of undercoating, Gerwig-Nelson customers are told, are to prevent corrosion and abrasion of the metal, and to sound deaden the car. When winter streets are treated with salt for ice-removal, corrosion can be especially serious, the customers are advised, but it can be prevented

(Continued on page 116)

...26 years

a **Snap-on**
mechanic



Ed Walker owned one of the first sets of Snap-ons in Kentucky . . . some of his "originals" are still going strong!

Ed Walker, one of the well-known mechanics at the Dayton Buick Co., Dayton, Ohio, says, "I have added many of the newer Snap-on tools and find them every bit as good as the first ones I purchased."

Such cases of loyalty to Snap-on tools are common among experienced automobile mechanics . . . because Snap-on tools have been loyal to them. In Snap-on's complete line there is a *right* tool for every job. They're safe tools to use and encourage speed, accuracy and good workmanship all along the line. Follow the lead of the veterans like Ed Walker . . . use Snap-ons! Available everywhere through Snap-on's nationwide, tool service.

SNAP-ON TOOLS CORPORATION
8036-G 28th Avenue • Kenosha, Wisconsin



For 29 years, Snap-on's Nation-wide Tool Service has proved to be

"The Time-Saving Way to buy Time-Saving Tools!"

Undercoating Continued from Page 114

completely by a good undercoating job.

Finally, "we put on a good, thick undercoating," the Gerwig-Nelson customers are informed. An eighth-inch thickness, it is pointed out, provides four times the sound deadening value of a coating only half as thick. It is about three times more effective in blocking

abrasion and corrosion because it has a rubbery, cushion-like "give" that enables it to withstand flying cinders and sand without being gouged away.

From the dealer viewpoint, Gerwig expounded, each undercoating job offers hidden values in addition to the visible cash profit.

"Undercoating preserves the car, giving it a better trade-in value for the owner—but also making it a better used car value for the dealer," he observed.

"In addition, undercoating new cars gives the customers greater satisfaction that they have made a wise purchase: The same make and model of car, if undercoated, has an entirely different 'feel' as compared to a non-undercoated car. The undercoated auto gives the customer the feeling of a good, sound, solid car—it actually gives him greater confidence in the dealer and in the car," according to Gerwig.

Many of the cars that Gerwig-Nelson undercoats are new Buicks that have been sold on the premises. Most of them are undercoated while factory-fresh, although some of them are brought in after a month or so of service for an undercoating job that was ordered at the time of purchase but delayed by the purchaser. In some cases, Gerwig noted, the purchaser is a back-yard tinkerer who likes to break in a new car and then tighten his own body bolts before having the car undercoated.

Of the various types of customers for undercoating, the most interested are those who plan to keep their cars two or three years or longer. The new-car-every-year customer is considerably harder to interest, Gerwig said, but can be sold when shown that the undercoating gives him a quieter-riding car and enhances his trade-in value by making the car more attractive to the dealer's used car market.



In golf, low score makes the champion. With bearings, low score in quietness is evidence of the championship anti-friction performance. These scores are obtained by measuring, in a scientific radio sound test, Andersons of sound of the ball bearing in operation. Recently Hoover ball bearings were sound tested in competition with four nationally known makes. Three hundred and fifty ball bearings, of the same sizes and quality, were tested. Hoover Ball Bearings with Honed Raceways scored 24 Andersons lower than the nearest competitor! Would such championship performance, at reasonable cost, add to the value of your product? A request, on your letterhead, will bring you a copy of the Hoover Engineering Manual.



America's Only Ball Bearing with Honed Raceways

HOOVER BALL AND BEARING CO.

ANN ARBOR, MICHIGAN



"Make him stop saying 'Windshield wiper—Zsst, zsst!'"

**- SELLS
ON SIGHT!**

THE NEW AND IMPROVED
Saginaw

**RECIRCULATING-BALL
BUMPER JACK**
is your star salesman!

It's a fact—this amazing new and exclusive bumper jack sells on sight! Place it in the hands of your customers . . . listen to them ask questions . . . watch them sell themselves . . . hear the music of the cash register!

And they're getting the finest, the sturdiest, the easiest-operating and the safest bumper jack ever developed! Operates on the same principle used to actuate bomb-bay doors and wing flaps in military aircraft. The base is removable and the handle folds against the shaft. It looks like quality and is quality.

If you want a real profit "angel," stock this unique item and see to it that every one of your customers gets a chance to "play" with it. Call in your United Motors distributor and start to jack up your profits!



*Saginaw Recirculating-Ball
Bumper Jacks are available
through United Motors dis-
tributors. Call yours today!*

Works so
easily and
is so safe
a child can
operate it!

Handle can't
spin while car is
stationary or is
being lowered!

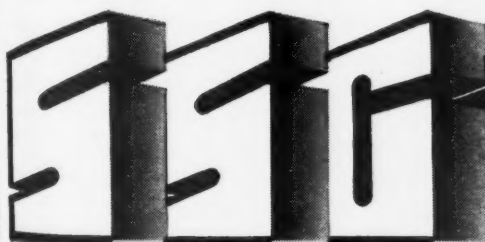
Sturdy,
dependable,
long-lasting!

Fits all cars
including
'49 models

**TESTED AND
PROVED
PRINCIPLE!**



Rolling balls are inserted
between threads where
they recirculate through a
special race-way and con-
tinuously reduce friction
to increase efficiency.



Saginaw

PRODUCTS

STEERING GEAR ASSEMBLIES • STEERING LINKAGE ASSEMBLIES
PROPELLER SHAFTS • DIESEL ENGINE AND AIRCRAFT PARTS

Working Capital . . . Continued from Page 45

fluctuations and consumer acceptance, whereas, cash and receivables were definite sums. During the war, and for some time in the postwar period, merchandise and materials shortages reversed this viewpoint. Business management was inclined to place more confidence in its inventories than in cash assets; so were bankers and creditmen, hence, a business needed less working cap-

ital if inventories showed a higher ratio to cash assets than in prewar years.

In some cases, the old ratio was reversed. Today, it is coming back into its own again, 2 to 1, cash and receivables to inventory. In most cases, automotive businessmen should try to approximate this ratio from now on.

There is no fixed ratio between

cash and the other accounts on the financial statement, but the cash account, before the war, was considered adequate if it ran 20 to 25 per cent of current loans. Today, cash should be at least 35 per cent of current loans, and where taxes are in the topflight brackets, relatively more.

The ratio of fixed to current assets is a consideration also. If you invest too heavily in fixed assets, this tends to impair working capital because the higher the fixed assets, the higher the fixed expense for upkeep. Where business management is efficient, we find that the working capital is usually in good condition.

Bankers and creditmen, prior to the war, considered that, in general, a current ratio of 2 to 1, in other words, \$2 in current assets for every \$1 in current liabilities, provided adequate working capital. Many businessmen still use this yardstick, but it is no longer a safe ratio for all.

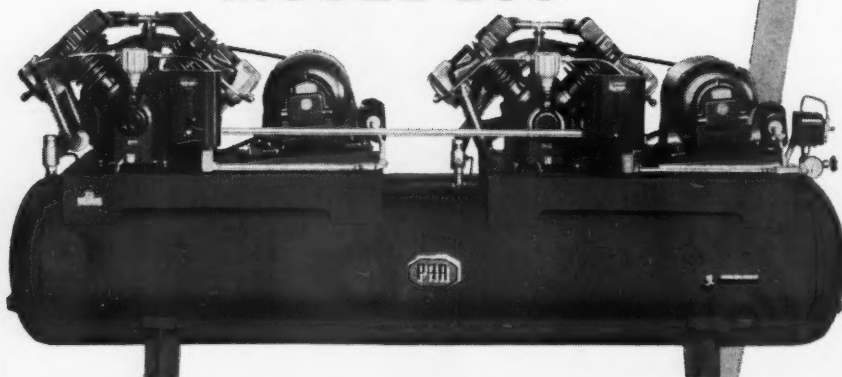
Recently we analyzed the financial statements of a number of operators in this field, however, and they showed that when the current ratio was 1.8 to 1, or \$1.80 in current assets to \$1 in current liabilities, the businesses in this group averaged a net profit of 3.32 per cent on sales and 4.7 per cent on working capital. When the current ratio was 2.6 to 1, those in this group averaged a net profit of 3.60 per cent on sales and 8.2 per cent on working capital, when the current ratio was 2.9 to 1, the businesses in this group averaged a net profit of 4.81 per cent on sales and 8.7 per cent on working capital, when the current ratio was 3.2 to 1, or \$3.20 of current assets to \$1 of current liabilities, this group averaged a net profit of 6.02 per cent on sales and 17.8 per cent on working capital, indicating that the current ratio today should approximate 3 to 1 to show maximum earnings. Before the war, when taxes and operating costs were low, a 2 to 1 ratio may have been enough to keep "seed money" in the safety zone, but not today. During the war and early postwar years, the ratio did not affect operations to a great extent because money was plentiful.

(Continued on page 122)

Need More Air?

try PAR

MODEL 100



When you add more air-operated devices to present facilities, better make sure your present Air Compressor can deliver enough capacity to give satisfactory performance. PAR Heavy Duty Model 100, 10 H.P. horizontal, engineered with all the outstanding PAR features including very fast pumping, slow speed for longer life and trouble-free performance, gives enough extra air power to keep your shop operations going at peak efficiency. Ask your equipment jobber about PAR Model 100 today.

**MEETS
OR EXCEEDS
U.S. BUREAU OF
STANDARDS
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BY COMPARISON — YOU'LL BUY PAR



PAR AIR COMPRESSORS



PAR REFRIGERATION COMPRESSORS



WRAP-O-MATIC CANDY & COOKIE WRAPPING MACHINES



PAR COMPRESSOR DIVISION TOLEDO, OHIO



MORPAC PAPER PACKAGING MACHINES

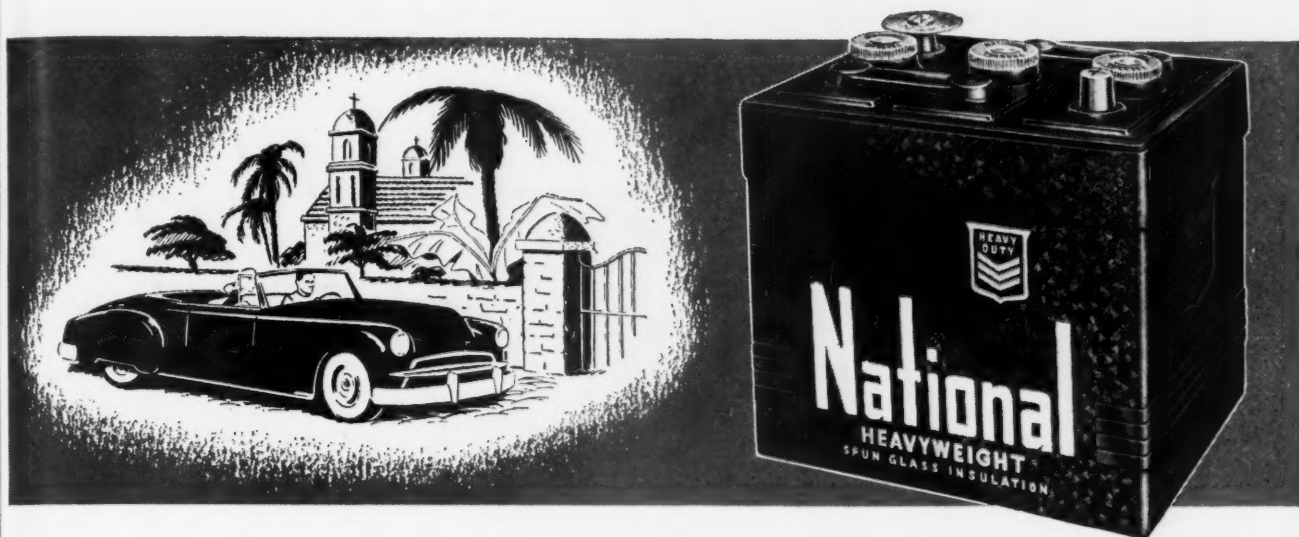


MORPAC BUTTER & OLEO PACKAGING MACHINES

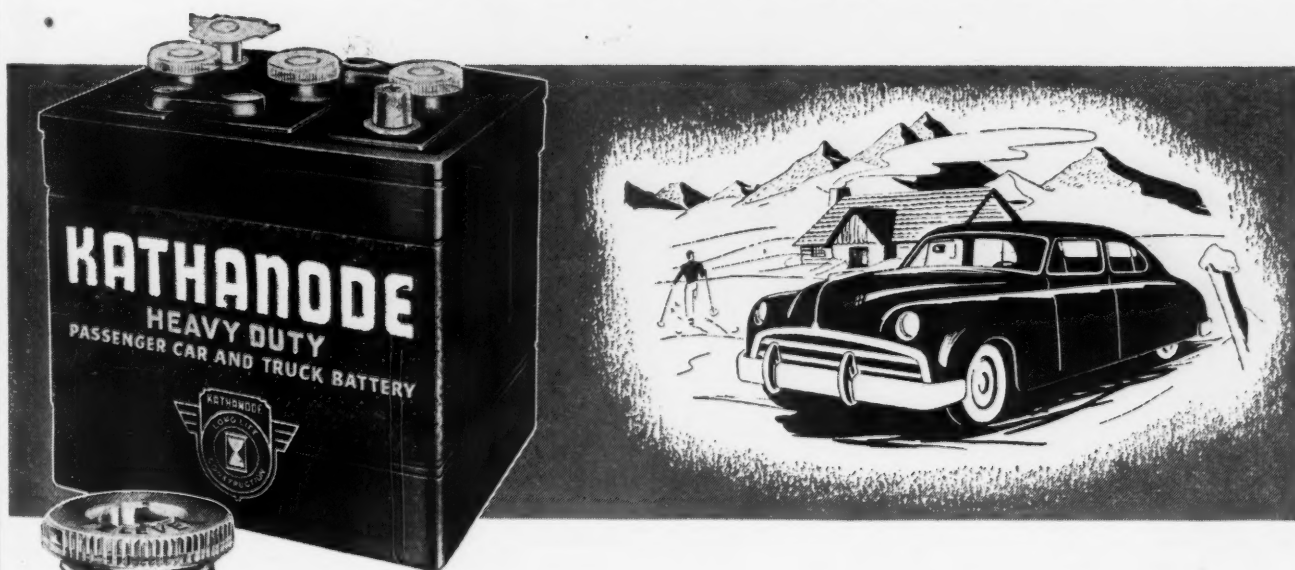


GLASS FORMING MACHINES

GET JUNE STARTS..



IN JANUARY!!



UPPER VIEW
Water Level "Full"
LOWER VIEW
Water Level "Low"

- National and Kathanode Batteries . . . precision engineered for fast starts, endurance and all round customer satisfaction.
- Equipped with TELEVEE Vent Plugs . . . TELEVEE tells water level at a glance . . . makes battery servicing quick and easy.
- Sealed 'til Sold for your protection . . . absolutely assures your customer a new, unused battery.
- A hard selling National-Kathanode advertising and merchandising program means greater sales and profit for you.

NATIONAL BATTERY COMPANY

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Factories: Atlanta • Chicago • Dallas • Leavenworth • Los Angeles • Lynchburg • Marlboro
Memphis • North Bergen • St. Paul • Zanesville • West Salem • Depew* • Trenton*
* Industrial Batteries

NOW—FOR THE FIRST TIME . . .

A Complete Line of

MORaine



Moraine, maker of original-equipment engine bearings for *all* General Motors cars and trucks, now offers a complete line of genuine General Motors replacement bearings, plus a complete line of bearings of the same high quality for all other popular makes of cars and trucks.

ENGINE BEARINGS

available to you through

UNITED MOTORS SERVICE



Only MORaine can offer all this—

COMPLETE LINE

Moraine engine bearings are usable for most of the replacement business for the country's 35 to 40 million motor vehicles.

GENERAL MOTORS APPROVED

Moraine bearings are the only original-equipment bearings on the market for all General Motors cars and trucks.

DUREX-100

The famous Moraine bearings used by Oldsmobile, Buick, Cadillac, GMC trucks and others—the only replacement bearing of its type.

STANDARD TYPE

Steel-backed babbitt-lined bearings used as original equipment on Chevrolet, Pontiac and others, are available for replacement for all other popular makes of cars and trucks.

FOR OLD AND NEW MODELS

There are Moraine engine bearings for all General Motors vehicles, and many other cars, trucks and buses, dating back to 1935 models.

READY AVAILABILITY

You can obtain genuine Moraine bearings from your own United Motors Service distributor.



MORaine BEARINGS
A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

MORaine PRODUCTS

DIVISION OF GENERAL MOTORS CORPORATION, DAYTON, OHIO

Working Capital . . . Continued from Page 118

production and goods moved quickly and were readily liquidated into cash in bank.

From now on, every seller of automotive goods and service must keep an eye on working capital to keep "heads up." A business with a net profit of only 2.32 per cent on sales, as indicated by our survey figures, a condition likely to result when the current ratio is less than

2 to 1, is not likely to have enough working capital in a buyer's market.

The figures on our survey work sheets illustrate that sometimes a business can have too much working capital for its own good. These figures show that where the current ratio, (current assets to current liabilities), is 3.2 to 1, the net profits are 6.02 per cent on sales,

whereas, when the current ratio is 4 to 1, net profits are 5.01 per cent on sales for the group, indicating that earnings increase with the current ratio and working capital requirements, only up to a certain point, then decrease. In other words, too little working capital depresses profits, so does too much.

Our analysis shows that earnings on investment or net worth react in a similar manner. When the current ratio is 2 to 1, earnings are 3.6 per cent on investment, when the current ratio is 2.5, or \$2.50 in current assets to \$1 in current liabilities, earnings on investment are 7.3 per cent, when 3 to 1, the earnings are 8.5 per cent, when 4 to 1, the earnings drop to 7.7 per cent, again a decrease when working capital gets too high.

This is because all the working capital is not being put to profitable use. Your working capital should be ample for requirements but all of it must be kept working to bring in profits so that the earnings on investment are satisfactory.

Give thought to working capital as well as to sales, profits and net worth. Compare the ratios of working capital from month to month, the same as you compare the trends on sales, profits and costs. This will keep you posted as to whether the ratio is favorable from period to period and it will enable you to meet all your obligations on time and take profitable commercial discounts on purchases.



and—

Dependable Performance with

SPRINGFIELD



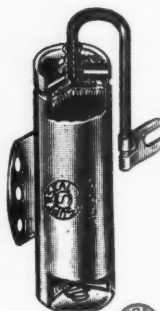
SUPERPOINT TUNGSTEN CONTACTS

Large diameter tungsten points (.187) last TWICE AS LONG as ordinary contacts — are furnace welded in hydrogen atmosphere, guaranteeing perfect bond. Strict adherence to original specifications, parts polished and radius ground.



SUPERSEAL CONDENSERS

Proofed against water, oil, acids, gas and fumes — each unit is stamped with identifying number. In any climate or operating condition, Super-seal Condensers demonstrate their superior electrical qualities.



SPRINGFIELD ELECTRICAL SPECIALTIES, INC.

120 WOOSTER ST., NEW YORK 12, N. Y. • EXPORT DEPT.: 120 W. 42ND ST., NEW YORK 18, N. Y.



"You live here, Buddy?"

in scorching heat- on roughest roads-



BRIGGS

*synthetic piston seal
assures smoother, safer riding*

In sizzling summer heat, shock absorber fluid loosens up and flows freer. It's harder for the piston to control. That's why Briggs Shock Absorbers are

equipped with a weather-resistant *synthetic* piston seal that controls the flow of the fluid exactly . . . assures a smooth, cushioned ride on the roughest roads . . . *in spite of the heat!*

Check every car that comes in to you for summer service. If shock absorbers are leaky or worn, replace them quickly with dependable, direct-acting Briggs. It's your customer's best assurance of safe, smooth riding in *any* weather.

THE BRIGGS SHOCK ABSORBER COMPANY
CLEVELAND 3, OHIO

*"For the ride
of your life-
for the life
of your car"*

Quickly available from
NAPA Jobbers everywhere.



BRIGGS

SHOCK ABSORBERS



Steel Buildings

COST LESS TO ERECT



Steel Buildings

FOR THE AUTOMOTIVE INDUSTRY

Quickly erected—easily adapted to meet your needs. Butler Steel-Aluminum Buildings are truss-clear—give you full space use. They're permanent. Many buildings, erected 30 years ago, stand today without a loosened bolt, leaky fastener hole or rattling sheet. Mail coupon today for complete information on these adaptable low-cost buildings.



Note full usable space and complete insulation in this Butler Building.
Sizes: 20', 32', 40', 50' and 60' widths.
Lengths variable.

See Your Nearest **BUTLER** Buildings Distributor

BUTLER MANUFACTURING COMPANY

Kansas City, Mo. Galesburg, Ill. Richmond, Calif. Minneapolis, Minn.

Please send information on Butler Steel-Aluminum Buildings, viz:

- ☐ 50 Ft. Width
- ☐ 40 Ft. Width
- ☐ 32 Ft. Width
- ☐ 20 Ft. Width
- ☐ 60 Ft. Width*

*(Bowstring Truss Design)

For Prompt Reply, Address:
7415 E. 13th St., Kansas City 3, Mo.
915 6th Ave., S. E., Minneapolis 14, Minn.
Dept. Y, Shipyard No. 2, P. O. Box 1072, Richmond, Calif.

FIRM NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Waxing Works Wonders

Continued from Page 49

which hardens evenly over the car. Another process used extensively is a chemical compound which is applied after cleaning, and buffed up with an electric buffer.

The above-mentioned products, as well as the cleaning compounds, tire cleaners, rubber preservatives, and so forth, are designed to produce first-grade work in a minimum of time. The final results for the shop that takes advantage of this lucrative market—are well groomed cars, satisfied customers and increased profits.

Fastest "Standard Auto"

The fastest speed ever recorded officially for a standard production car has been chalked up by a Jaguar which clocked 132 miles an hour at the Ostend Jabbeke racing track. The driver was the Jaguar Company's chief tester, R. Sutton.

So many orders have been received from America for the Jaguar sports car, which is claimed to be the finest car of its type in the world, that the firm could keep going for a whole year on American orders alone.

The Jaguar retails on the east coast for \$4,600 or \$4,700 for the convertible model.



"I always fill up a couple of bags of it to take along in case of a flat."

(Advertisement)

DE SOTO

Lets you drive
without shifting!



The record breaking demand for the New De Soto proves that motorists are always eager for beautiful styling, extra comfort and outstanding performance.

PEEDEE says... "TOPNOTCH

TUNE-UP JOBS

always go with this

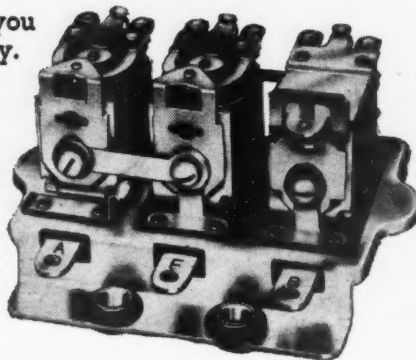
Trademark!"



● You are always sure of customer satisfaction when you use genuine P&D products. That's because they are manufactured entirely in our modern plant from raw materials to finished products to assure long, dependable service.

The P&D voltage regulator is typical of the expert automotive engineering, finest materials, and skilled workmanship that go into all P&D parts. See the large size insulated copper magnet wire that gives the windings maximum electrical stability. Next, notice the insulation. It's made of the best laminated phenolic plate available. And the contact points are the integral type . . . built to resist pitting. The riveting shank and contact proper are especially designed to provide minimum and unvarying electrical resistance between contact and mounting.

Yes sir — P&D parts are the best you can handle to keep customers happy. Write today for your free copy of the new Catalog No. 49 giving full information on P&D brushes, bushings, cut-outs, distributor products, etc. — the one complete line of electrical parts for all vehicles.



Turn Out Better

Tune-up Jobs

With PeeDee

P&D

MANUFACTURING COMPANY, INC.

LONG ISLAND CITY 5, N. Y.

More Information on Oliver Tractor Engines

In the February issue of *MOTOR AGE*, an item appeared in Readers Clearing House discussing remedies for burning valves on Oliver tractor engines. Since that time we have received more helpful information from the Oliver Corporation, Charles City, Iowa.

According to the manufacturer of this tractor, this condition of burning valves is aggravated by an excessive deposit of lime within the cylinder head. The burning usually occurs adjacent to the spark plug, because the metal in the head between the spark plug and the valve port is thicker than anywhere else in the combustion chamber. A critical temperature condition exists at this point and where it will not cause exhaust valve burning in a new head immediately after it has been installed, a small deposit of lime will soon cause this trouble. Many Oliver dealers have successfully remedied this condition by soaking the heads in Oakite No. 32 compound for from two to four hours. In some localities the water has such a high lime content that this measure does not help. For those localities, a rotor type valve is available. This valve is of the release type, and when installed, the burning problem is eliminated.

Bonney Consolidates Southeast Territory

F. S. Durham, President, Bonney Forge & Tool Works, Allentown, Pa., has announced the recent consolidation of the Bonney Southeast sales territory.

George H. Roberts, who has been active for several years as sales representative in the Atlanta district, has been appointed Southeast Division Manager. He will be assisted by W. J. Brown, covering the Southern section, and Ken Thorp, in the Northern section of the territory.

This move has been made, it is stated, in order to provide increased direct factory contact and merchandising assistance to jobbers and dealers in this territory.

Alert buyers are following the signs to the

New Hudson America's "4-Most" car!

THERE is one car that offers—not just a little "more" of this or that, but the *most* of all motorists want most in a motor car. It's the brilliant New Hudson—the *most* beautiful, the *most* roomy, the *most* road-worthy, the *most* "all-round-performance" car of them all. *America's 4-Most Car!*

When buyers can get all this in the New Hudson—and at a value-packed price—why *should* they settle for less? Why not sell the car that *proves* what engineers have always known:

The lower a car can be built (while maintaining full road clearance), the more graceful its lines can be made, the better it will ride and perform, the more surely it will handle, the safer it will be!

A few Hudson franchises are available for those qualified. If interested, write: N. K. VanDerzee, Sales Manager, General Sales Department, Hudson Motor Car Company, Detroit 14, Michigan.

★ ★ ★
Eight body styles in Super Series and Commodore Custom Series. Ten brilliant new body colors. Two special colors or five two-tone combinations—white sidewall tires—at extra cost.

40 YEARS OF ENGINEERING LEADERSHIP



1 most beautiful

Voted by millions—"America's most beautiful car!" A low build is the basis for modern beauty, and the New Hudson, with "step-down" design, is lowest of all—yet full road clearance. Its stunning lines flow naturally, even to the graceful curves of its Full-View windshield.

2 most roomy

Not just "more" room, but the *most* seating room; leg room to spare. The *most* efficient use of interior space in any mass-produced car; amazing head room. The *most* riding comfort—*ahead* of rear wheels, within the base frame, down where riding is *most* smooth, *most* relaxing.

3 most road-worthy

Not just "more", but *most* road-worthy! Only Hudson, with its exclusive "step-down" design and recessed floor, achieves a new, lower center of gravity—lowest in any stock car. Result: safest, steadiest ride ever known! To all this, Hudson adds the advantages of unit body-and-frame construction.

4 most all-round performance

Choose the high-compression Hudson Super-Six engine, America's *most* powerful Six, or even more powerful Super-Eight. Center-Point Steering for easiest handling. Triple-Safe Brakes for utmost safety. Many more high-performance, low-upkeep features.



ONLY HUDSON OFFERS ALL THIS: Automatic gear shifting with Drive-Master Transmission*
... all-new, high-compression Super-Six Engine or masterful Super-Eight ... Chrome-Alloy Motor Block ... Dual Carburetion ... Fluid-Cushioned Clutch ... Monobilt Body-and-Frame** ... Safety Jack Pads under frame ... Demountable Individual Fenders ... Wide-Arc Vision ... No-Glare Instrument Panel ... Super-Cushion Tires ... Safety-Type Rims ... Weather-Control Heater-Conditioned-Air System*.

*Optional at slight extra cost

**Trade-mark and patents pending

New Hudson

ONLY CAR WITH THE STEP DOWN DESIGN

354

The Houdaille-Hershey Corporation, Buffalo, N. Y., has announced the addition of a new heavy-duty, direct-action unit to its line of shock absorbers. It is claimed that the new Houdaille "Husky" is the only heavy-duty, direct-acting shock absorber which is interchangeable with standard-

size units and fits present production installations without sacrifice in collapsed or extended length. Changeover entails no drilling and no special fittings or brackets. "Huskies" are being offered both for original equipment installation and for After-Market service-sales. For the latter, they are being packaged in pairs complete with the necessary bushings.

Keep a **DORMAN WRENCH POUCH** *in Your Pocket!*

POUCH IN RED GREEN or BROWN LEATHER

8 SET SCREW WRENCHES IN WP 1

POUCHES MADE OF TOP GRAIN LEATHER

5 WRENCHES IN WP 2

SOCKET SET SCREW WRENCHES

SET SCREW WRENCHES FROM No. 8 to 1 1/2

WRENCHES MADE OF SPECIAL HEAT TREATED ALLOY STEEL

DORMAN PRODUCTS Inc.
CINCINNATI, OHIO

355

The Ashton Power Wrecker Equipment Co., Detroit, Mich., is offering a new unit for converting any four speed pickup into a wrecker or shop truck. This unit is designed for emergency calls ranging from tire changes to towing disabled cars. When needed for pickup service the boom, sup-



ports and tow plate are removed and stored in the box or left in the shop. The equipment includes: 2 1/2 ton capacity crane with extension boom adjustable to three lengths, a power winch having a safe working load of 4 tons, 100 feet of 3/8" x 6-37 improved plow steel wire rope with hook attached, standard Ashton spacer and lift bar. The controls are mounted at the left rear of the body or in the cab as desired.

356

The Truckstell Manufacturing Company, Cleveland, Ohio, and Detroit, Mich., announces the 1949 model of the Truckstell "Tip-Toe-Matic" overdrive, for use on the new Chevrolet. The manufacturer states that it will continue to manufacture overdrives for 1948 and earlier model Chevrolets.

357

The Bear Manufacturing Company, Rock Island, Ill., is featuring a new 12-ton Flex-O-Power unit to handle various front end correction operations. The unit, which includes a hydraulic pump with 12 different attachments, is especially adapted for use on independent suspension cars.

(Continued on page 130)

INDEPENDENT SERVICEMEN... THE CHEVROLET DEALERS OF AMERICA *are* **READY...**



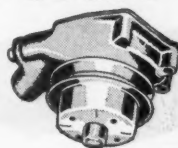
WILLING...

and ABLE to serve you

Use Genuine Chevrolet Parts to Help You—

- 1. Build greater customer satisfaction and bigger profits.**
- 2. Gain greater volume and permanence for your business.**

A STORY WORTH TELLING



Chevrolet water pumps—a typical genuine Chevrolet part—are built to give maximum efficiency and longer life without leakage.

Here is the "inside" Feature Story—

SEAL—A flexible seal of synthetic material unaffected by coolant and anti-freeze solutions—encloses a corrosion-free bronze spring, self adjusting to take up seal washer wear with mileage.

SEAL WASHER—Long life asbestos and bakelite material with high wear resistance.

ROTOR OR IMPELLER—Tapered machine surfaced vanes (within .025) to produce proper water flow.

LIFETIME BEARING LUBRICATION—The bearings are packed, at the time of manufacture, with a special high melting point grease and need no further lubrication.

TELLING AND SELLING THE STORY OF GENUINE CHEVROLET PARTS WILL MEAN PROFITS FOR YOU.

**PARTNERS
IN SERVICE**

**FOR YOUR BEST DEAL...
DEAL WITH YOUR
CHEVROLET DEALER**

**PARTNERS
IN SERVICE**

358

The Pennsylvania Refining Company, Cleveland, Ohio, is now marketing a new underbody protective coating and sound deadener.

Trade-named Penn Drake Auto Undercoater, the odorless and non-toxic material has an asphalt base combined with a heavy, non-abrasive filler, and fast drying sol-

vent. The manufacturer states that it atomizes freely and may be applied under low air pressure with conventional spray equipment. The vulnerable underbody areas are covered with a tough, elastic coating, according to the manufacturer, which has superior qualities of sound deadening, weather-proofing, abrasion resis-

tance and adherence. Will not peel, crack, chip or blister under impact, vibration and temperature changes, it is claimed, and will not sag or run at heat to which car is normally subjected.

359

Fairmount Tool & Forging, Inc., of Cleveland, Ohio, supplies its complete line of body and fender repair tools mounted on an all-

Put Your Money on the

**Thermoid
Line**

**SAFEST
THING
ON
WHEELS**



Because Thermoid Custom Built Sets plus Precision Processing guarantee perfect brake performance, Thermoid is the big quality name in brake linings. What's more, Thermoid is the only brake lining that

earns the famous Pittsburgh Testing Laboratory seal of approval. Thermoid also has consistently been the first choice of top brake specialists.

Copyright 1949—Thermoid Company

The Thermoid Line

Brake Linings • Clutch Facings • Fan Belts
Radiator Hose • Hydraulic Brake Parts and Fluid
Car Mats • Thermoid Precision Process Equipment
Complete Brake Service Departments

Thermoid Company, Trenton, New Jersey



metal board. Each tool is secured with metal clips over numbered silhouettes, showing the location and contour so they may be easily recognized, removed and replaced. The board is 28 x 66 inches.

(Continued on page 132)



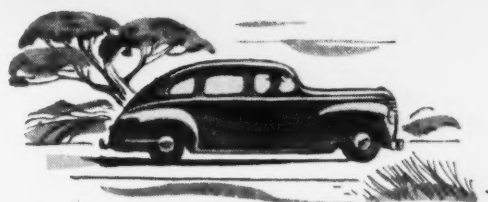
"There's Mr. Hawkins—going out without his wife again!"

MAKE YOUR CUSTOMERS YOUR BEST SALESMEN...

install pistons of **ALCOA** **LO-EX**



Ever see a customer whose face didn't fall when you told him he needed a piston replacement job? It's a big investment! But he usually decides to go ahead with it on your say-so.



Renewed engine performance is what he expects for his money. Don't disappoint him! Install aluminum pistons of genuine Alcoa Lo-Ex, and he'll have a smoother-running car, one that costs less to operate.

That's what happens when you install Alcoa Lo-Ex pistons! Your customer gets results that make him happy he came to *your* shop. You get some free advertising.

Alcoa Lo-Ex alloy gets rid of heat fast—permits a close piston fit. Why stock "just any" aluminum pistons? Build your reputation with pistons of Alcoa Lo-Ex, finished by leading manufacturers.

ALUMINUM COMPANY OF AMERICA, 21336 Gulf Building, Pittsburgh 19, Pennsylvania.



He'll tell his friends that your shop is the best service garage in town... that you put more "snap" into his car than he dreamed was possible!



Aluminum Pistons of **ALCOA LO-EX**

New Products Continued from Page 130

360

The Fostoria Pressed Steel Corp., Fostoria, Ohio, announce the new "Porta-Ray," an infrared portable drying unit. The manufacturer advises that "Porta-Ray" is light enough to be carried in one hand, has a twoswitch radiation control, is fully adjustable, has a maximum radiant intensity

(up to 2 KW), and comes complete with a heavy duty 25' cord for 110-120-V operation.

361

The J. H. Bender Equipment Co., South Gate, Calif., announces a new chamber and caster gauge. This unit is said to fit all makes

of cars. It attaches to the hub by a magnet and, according to the manufacturer, eliminates checking the tire and wheel for trueness. The manufacturer further



states that only four adjustments and three readings are required to completely check the wheel alignment with this camber and caster gauge. It can be used on the floor, on any rack or wheel alignment machine.

362

The K-D Manufacturing Company, Lancaster, Pa., now offers its No. 30 socket screw key set, which contains 11 hex keys from .050 to $\frac{3}{8}$ inches. The keys are packed in a metal kit with a hinged retaining clamp. Furnished with this kit is an extension handle for use when the long end of the key is turning the screw. A chart is stamped on the container giving the size and data required on each key.

363

Champ-Items, Inc., St. Louis, announces a new product, the No. 456 Pitman Idler Arm Silencer for 1949 Ford, Mercury and Lincoln cars, designed to provide the proper tension to eliminate lost motion and noise. The assembly consists of a metal cup, an oil resisting rubber grease retainer, a compression spring, and a washer

(Continued on page 134)

ARO
NEW Jobmaster
KITS!

Save TIME
on everyday jobs!

There is an Aro Jobmaster Tool Kit to meet all the requirements of EVERY automotive application in your shop, for car dealers, service stations, and garages.

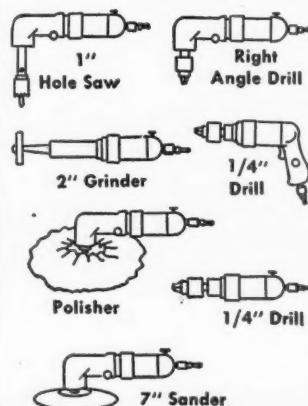
3 Attractive Tool Kits—3 Attractive Price Ranges!

No. 2 Kit—(illustrated above) Seven dependable tools for 101 different jobs!
No. 3 Kit—Six tools in one for versatility!
No. 4 Kit—The Junior Kit for sanding, polishing and drilling operations!

See Your Aro Jobber Today! The Aro Equipment Corporation, Bryan, Ohio.

ARO AIR TOOLS
ALSO . . . LUBRICATING EQUIPMENT
. . . HYDRAULIC EQUIPMENT . . . AIR-
CRAFT PRODUCTS . . . GREASE FITTINGS

7 TOOLS IN 1 KIT



This ad in

is Your ad!

It says **BUY** from
YOU when you
display **FRAM**
COMPLETE ENGINE
PROTECTION

MORE PROFITS are yours when you tie-in with FRAM! Powerful Fram consumer advertising becomes your advertising when you display Fram Complete Engine Protection to tell your market you sell it. Tie-in! Cash-in with Fram! See your jobber . . . Now! FRAM CORPORATION, Providence 16, R. I. In Canada: J. C. Adams Co., Ltd., Toronto, Ontario.

For Complete Engine Protection

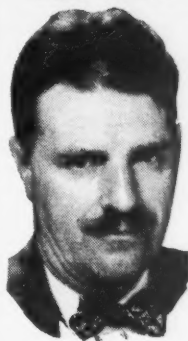
FRAM



OIL - AIR - FUEL

FILTERS

120,000 Miles Through Hell



without any repairs

California construction engineer says:

“Fram enabled me to drive 120,000 miles without delay for repairs . . . through mud, snow, dust and sand storms so thick you couldn't see the radiator from the driver's seat. Although the paint was sand blasted off and the glass pitted, my motor kept purring along . . .”

Put this FRAM Protection on Your Car

Famous FRAM Oil & Motor Cleaner "cleans the oil that cleans the motor," removes harmful dirt, dust, grit, sludge and abrasives from your oil. Outside-in flow assures greatest filtering area.



Fram's famous Filtron Cartridges remove harmful particles down to one micron (.000039 of an inch) . . . offer highest clean oil flow rate, maximum dirt capacity, longer cartridge life, lowest clean oil cost per mile. Exclusive non-abrasive filtering media won't remove additives from compounded oils. Sturdy metal casings prevent cartridge rupture.



Fram's large sump area increases cartridge life . . . allowing heavy dirt, carbon, metal particles to settle to bottom of filter where they can be drained off easily.



New Products Continued from Page 132

with flat side for clearance. One silencer is required on each end of idler arm.

364

Sparton Automotive, Division of The Sparks-Withington Company, announces the Sparton Polavision Rear View Mirror, which is de-

signed to absorb the glare reflected from the rear by the sun in the daytime and the glaring lights at night. Light reflected from this polaroid mirror is said to be toned down so that only 16.5 per cent of the light striking it is reflected into the driver's eyes. An ordinary rear view mirror reflects 70 per cent of the light.

TOPPER NO. 3
 SUPERGO Coils have super-service windings—precisely balanced to insure peak performance and economy. All that 45 years of coil making experience has taught is reflected in the quality of SUPERGO Coils.

GO.. with SUPER GO

America's
OUTSTANDING IGNITION PARTS

Organization . . . development . . . field proof . . . it's a 45 year pattern at Wells in developing today's advanced SUPERGO Automotive Ignition line. It's a line of heavier duty, super performance parts that are precision built for exact fit and easier installation.

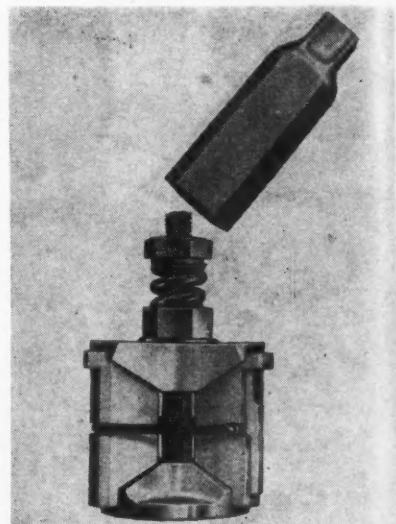
ALL SUPERGO parts are backed by an unconditional guarantee of satisfaction. Ask your jobber to serve you with SUPERGO. Wells Mfg. Corporation, Fond du Lac, Wis.

QUALITY TELLS . . . DEMAND WELLS

WELLS
Automotive Ignition

365

The Lisle Corporation, Clarinda, Iowa, announces a new ridge reamer equipped with a tungsten carbide cutter designed so that it



can not overcut or bellmouth. Named the Lisle "Quik-Set," the reamer has a range of 2½" to 4½" and is claimed to remove ridges without rocking or chatter. Expansion control is located at the top of the tool.

366

Moog Industries, Inc., St. Louis, Mo., announces additions to its line of Coil Action Parts: lower control arm assemblies for 1939-48 Pontiac, 1939-49 Oldsmobile, and 1940-49 Buick.

These arms are said to be universal and can be used for either the right or left side. They are completely threaded on both ends. The manufacturer states these are exclusive Moog products, designed by Moog engineers.

367

The Accurate Tool and Gage Co., Minneapolis, Minn., announces the new hydraulic Sleeve-Master for pulling and inserting cylinder sleeves in all makes of sleeve-type motors.

The Sleeve-Master is equipped with a 25,000 lb., two-stage hydraulic pump that gives maximum pulling power for breaking the sleeve loose, and then, by a flip of a hand lever, permits extraction with long pumping strokes.

(Continued on page 136)

Keep it Quiet! Keep it Tight!

with

**DURKEE
ATWOOD**

DOR-TITE

THE ORIGINAL ALL-PURPOSE SPONGE-RUBBER STRIP WITH PATENTED NO-STRETCH FABRIC BACK

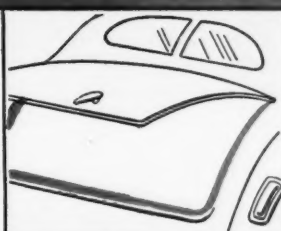
Licensed under U.S. Letters Patent No's. 1,808,080 and 1,960,137



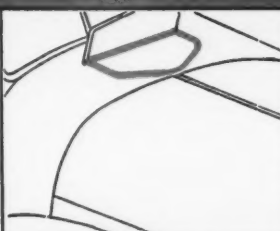
"Like you said Lem,
Dor-Tite sure keeps a car quiet!"



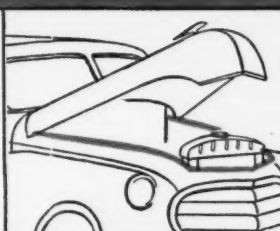
CAR DOORS—Replace worn weatherstrip with Dor-Tite. Doors will close quietly, fit tightly. Stops rattles and drafts; keeps out dust.



CAR TRUNKS—Seal your trunk against water and dust. Replace leaky, worn rubber strip with Dor-Tite. There's a size to fit perfectly.



VENTILATORS—Replace leaky cowl gaskets with Dor-Tite. No glue necessary. Dor-Tite's adhesive back sticks quick ... stays stuck!



HOOD GASKETS—A cushioning strip of Dor-Tite placed all around where the hood makes metal-to-metal contacts, stops rattles, squeaks.



TRUCK BODIES—Dor-Tite on doors of panel trucks protects merchandise from dust and drafts. Dor-Tite seals refrigerated trailer doors.



MULTIPLY DOR-TITE SALES with this colorful enameled-steel merchandiser on your counter. Complete with 48 packages of the six fastest-selling Dor-Tite sizes. Ask your jobber or write us.

DOR-TITE

IS ANOTHER PRODUCT OF THE

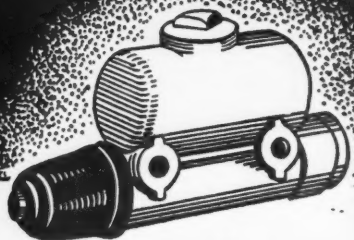
DURKEE-ATWOOD

COMPANY
MINNEAPOLIS 13, MINNESOTA
MANUFACTURERS OF 41 AUTOMOTIVE
RUBBER AND CHEMICAL PRODUCTS



It Pays TO REPLACE WITH **MERCURY** *Exchange* **BRAKE CYLINDERS**

Turn your "junk" cylinders into cash by exchanging them for famous Mercury Rebuilt Cylinders. You'll save from \$2 to \$3 on every job, but, more important, your customer will get a proven dependable replacement. Make all of your brake cylinder jobs bring bigger profits by taking advantage of the generous Mercury Exchange Plan.



They're Perfect **REBUILT** TO HIGHEST FACTORY STANDARDS

- Cylinders are disassembled, degreased and renovated to remove all rust, fluid, scale and pits.
- Cylinder walls are rebored, then honed to Super-Mirror finish on special Mercury honing equipment.
- NEW springs, valves, rubber parts used throughout.
- Rigid inspection for machining tolerances, spring tension, tight seal and operating perfection.

"They Must Be Good"

\$100,000.00 INSURED PERFORMANCE

Precision rebuilt Mercury Cylinders are guaranteed leakproof, will stand up under the most rugged braking conditions.

YOUR JOBBER can supply you with Mercury Rebuilt for all car and truck models. Take him your "junks" for generous exchange discounts.

MERCURY
BRAKE PRODUCTS CO.

1532 West Fulton St.
Chicago 7

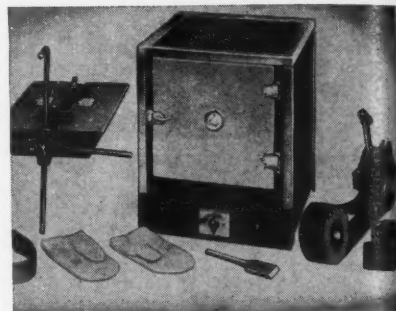
The World's Largest Exclusive Rebuilder of Brake Cylinders

New Products Continued from Page 134

368

The United States Air Compressor Company, Cleveland, Ohio, announces its new 2-post lift, which is designed to eliminate the necessity to crawl under the car to spot the rear axle. A special synchronizing dial does the spotting without the use of bars, plungers or hooks. When the car is driven onto the new U. S. 2-post lift, the manufacturer states, the front wheels spot themselves in proper position for the front post. To bring the rear member in line with the rear axle, the synchronizing dial is turned to the number shown on a scale opposite the center of the rear car wheel. The U. S. 2-post lift is a full hydraulic lift, available in two models—with and without the patented synchronizing spotting dial. With pistons installed at 125" centers, the U. S. 2-post lift will accommodate wheel bases ranging from 103" to 147" and weights up to 5 tons.

with automatic shut-off switch releasing operator for other work during the oven curing. A feature



is the pre-set thermostat, eliminating the necessity for setting a heat regulator dial and possible human error. Another feature is the pressure band assembly, which is claimed to develop uniform, heavy pressure and especially "follow-up" pressure during the curing cycle.

370

The Gabriel Company, Cleveland, Ohio, is marketing a new package assortment of shock absorbers. Designated as AD-49, the assortment contains 10 popular shock absorbers, 5 bushing kits, cut out display, tacker sign, wall chart and catalog sheets, all packaged in a display carton. This complete package provides all the merchandise and material to set up a garage or service station in the shock absorber business.

369

Dura-Bond, Inc., Ann Arbor, Michigan, has added a new model oven to its line of relining equipment. The Model 8000 oven is claimed to bond passenger car brake linings to shoes at 32 shoes per hour. It accommodates truck brake shoes through 16" diameter. The ovens are fully automatic,



371

Sunnen Products Co., St. Louis, Mo., announces a new, improved tension wrench. This wrench has a high limit of 100 foot-pounds, which can be increased to 150 foot-pounds by using an extension designed for the purpose.

The manufacturer claims an unusual advantage for the wrench, in that the operator merely sets the adjustment to the tension desired and a toggle action releases the pressure when the tension is reached. The setting remains fixed (resets automatically) until changed manually.

If You Service Trucks—



*Your NAPA Jobber
is a Good Man to Know!*

As part of the nation's largest independent parts organization, your NAPA Jobber is in position to give you unparalleled service on finest quality parts for trucks of *all* makes and *all* ages.

From his own stocks, your NAPA Jobber is prepared to meet the vast majority of your normal requirements. For unusual needs, your NAPA Jobber can come to the rescue *promptly* by drawing on master stocks in the nearby NAPA Warehouse.

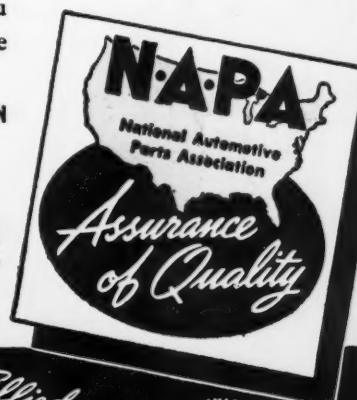
Many of the lines available from your NAPA
NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT 1, MICHIGAN

Jobber are widely used as original equipment in trucks. And the genuine quality of *all* NAPA lines is familiar to your customers through NAPA's consistent advertising to car and truck owners in The Saturday Evening Post.

If you haven't already discovered the advantages of doing business with your NAPA Jobber, get in touch with him now. Let him explain in detail how he can simplify your parts purchasing—save you time and help you make more money on truck service.

N.A.P.A.

*is the largest Independent Parts
Organization in the Industry!*



American Brakeblok BRAKE LINING • CLUTCH FACINGS FAN BELTS • RADIATOR HOSE	Allied Wisconsin PISTONS • SLEEVES	UNITED FUEL PUMP HYDRAULIC BRAKE SPEEDOMETER AND BRAKE CABLES	Monmouth ENGINE BEARINGS CLUTCH PLATES & PARTS CHASSIS PARTS	STANDARD GREASE RETAINERS	Allied GRAPHO WATER PUMPS PARTS • PACKING	BROWN LIPE GEAR BOXES
RARITAN ROLLER BEARINGS	Buffalo MUFFLERS	BRIGGS SHOCK ABSORBERS	Allied PRECISION PISTON PINS	Allied A.P.C. VALVES	ECHLIN IGNITION PARTS	BALKAMP PARTS FOR FORD CHEVROLET • PLYMOUTH AND ALL POPULAR CARS
PURITAN BRAKE FLUID SHOCK ABSORBER OIL FLUSHING FLUID GASKET SEALS	Allied RAYMOND VALVE SPRINGS	ZOLLNER PISTON EQUIPMENT	BUFFALO FIRE EXTINGUISHERS	DETROIT UNIVERSAL JOINTS	TRICO VACUUM OPERATED SAFETY PRODUCTS	MicroTest GEARS • AXLE SHAFTS
DITTMER TRANSMISSION GEARS	MARTIN-SENOUR AUTOMOTIVE FINISHES	Belden WIRE AND CABLE	New Britain HAND TOOLS	FEDERAL BALL BEARINGS	Thomson THERMOSTATS	CELORON TIMING GEARS
						Spicer UNIVERSAL JOINTS

Philadelphia Auto Show

The 1949 Philadelphia Auto Show announced a final paid attendance well in excess of 25,000. Car dealers report that sales ran exceptionally high and declared that the audience was made up of a high percentage of people who were definitely interested in purchasing new cars. In appearance the show matched the best of pre-war years, and the antique cars on display made an interesting addition.

The paid attendance was considerably better than that at the last Philadelphia Show in 1939,

when a paid total of 19,000 was announced. Total attendance at both shows was the same, 31,000.

Nearly 300 orders were taken at the show by dealers on the floor, and the names of 4000 prospects.

M. J. Duryea, Show Manager, stated that financially the show was a success.

Special Awards at the show were given as follows: best special feature, Kaiser-Frazer Sentinels; best special exhibit, Pontiac Division of General Motors; best factory display of antique automobiles, Nash Motor Co.; best educational exhibit, Atlantic Refining Co.; largest number of antique cars on display,



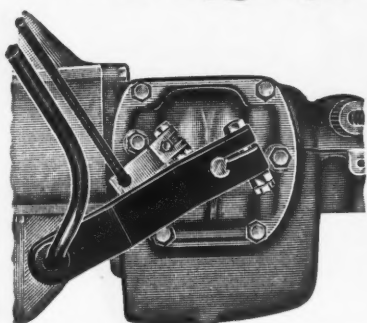
Mayor Samuel of Philadelphia cuts the ribbon to open the show

Joseph Van Sciver; oldest antique car, D. Cameron Peck's 1888 DeDion et Bouton Steamer; most beautifully decorated booth, Ford Motor Co.; most interesting coach work, Melbourne Brindle's Crane Simplex; antique car that has traveled most, George C. Green's 1904 Oldsmobile Runabout; first commercial built automobile, K. H. Gibson and G. H. Waterman's 1896 Duryea; most comfortable booth for show guests, DeSoto Division of Chrysler; most outstanding chassis exhibit, Buick Division.



Quick-Economical CHANGE-OVER MECHANICAL GEAR SHIFT ASSEMBLY

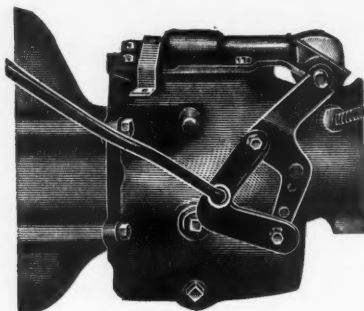
for CHEVROLET CARS 1939 thru 1948



No. 454

**MECHANICAL GEAR SHIFT
ASSEMBLY FOR 1940 THRU
1948 CHEVROLETS**

A simple replacement assembly
— it's positive! List \$3.00



No. 453

**MECHANICAL GEAR SHIFT
ASSEMBLY FOR 1939 CHEV-
ROLET**

Soundly engineered to
do the job right. List \$3.00

Here is the answer for many car owners, who will welcome a mechanical gear shift that gives positive, easy and desirable gear shifting with economy. Can be installed in 20 minutes.

ORDER
FROM

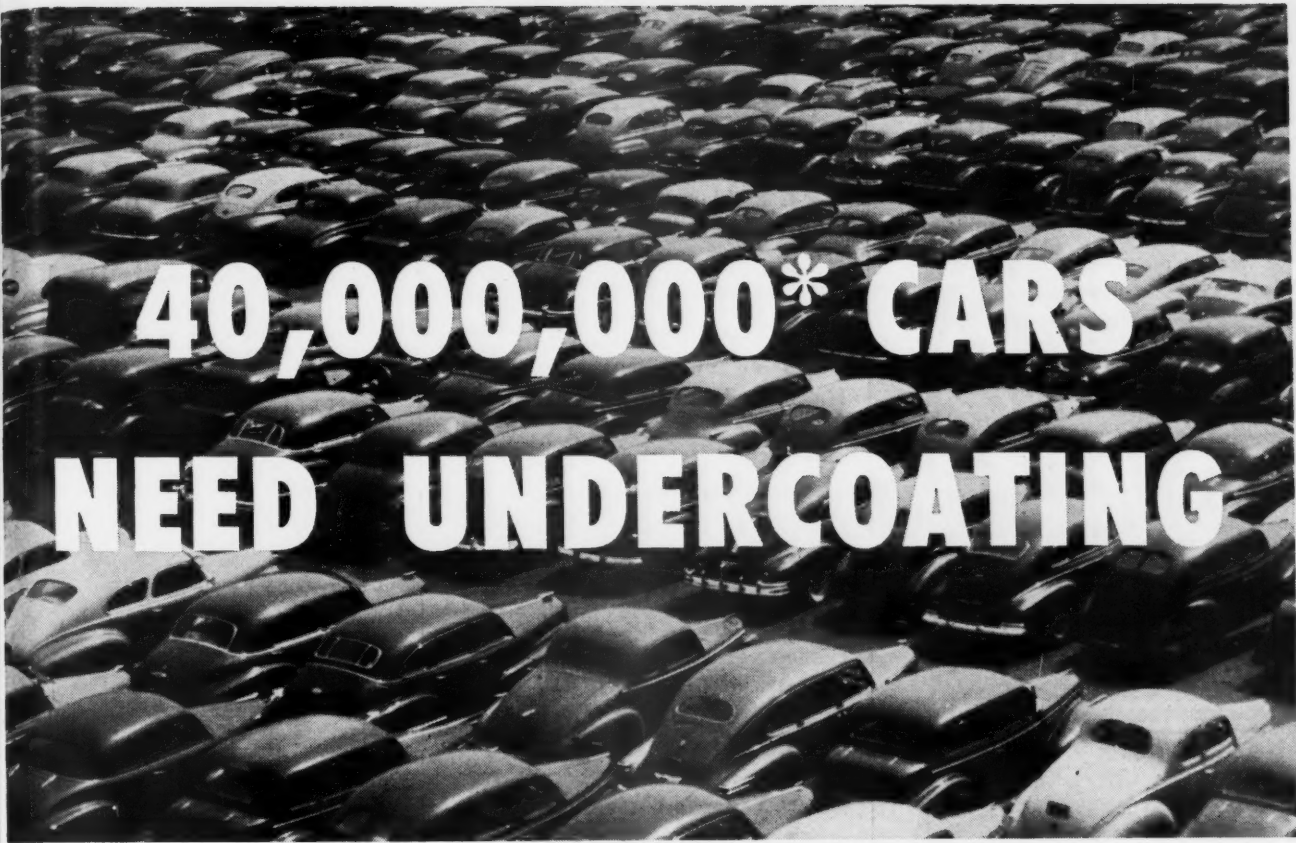


YOUR
JOBBER

CHAMP-ITEMS, INC.

6191 Maple Ave.

St. Louis 14, Mo.



40,000,000* CARS NEED UNDERCOATING

**PROTECTS
AGAINST RUST**

**REDUCES
VIBRATION**

**SILENCES
SQUEAKS**

**SEALS OUT
DUST**

**MUFFLES
NOISES**

*Estimated

**NOW...Get in this REAL Profit
Field with superior**

LION ***Nokorode***

Under-Car Sealer and Silencer

Now is the time to start selling underbody coating—for extra profits. An estimated 40 million cars and trucks need underbody coating; so get your share of this tremendous new profit field now.

You'll find the real profit field exists for Lion Nokorode, because its quality is uniformly superior . . . entirely produced from raw material to finished product by a single company—Lion—under U. S. Patent No. 2393774.

Yes, it pays to sell an underbody coating you can sell with confidence. And Nokorode's controlled quality and uniformity assures ease of application and customer satisfaction.

Find out about the proven way to extra profits with Lion Nokorode. Just call or write for details of Lion's complete, backed-by-advertising plan . . . the plan that can add many extra dollars to your profit picture fast.

LION OIL COMPANY

El Dorado, Arkansas



KEN-TOOL *Outstanding Quality!*

UNIVERSAL TRUCK WRENCHES

SUPERIOR QUALITY TOOLS,
HOT-FORGED FROM CHROME-
NICKLE ALLOY STEEL.

TR-1 "Job Designed" for
Ford, Budd and Dodge
wheels.

TR-2 "Job Designed" for
servicing Chevrolet Dual
wheels.

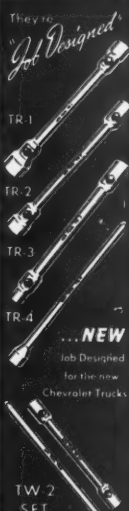
TR-3 "Job Designed" for
International, Federal,
Studebaker, Diamond T
and Mack wheels.

TR-4 Leverage bar with
socket for GMC, Reo and
Federal wheels.

See Your Local Jobber
For Our Complete
Line!

Largest Exclusive
Manufacturers of Tire
and Wheel Changing Tools

The KEN-TOOL Mfg. Co. Akron 5, Ohio



SALES BUILDING FUSE DISPLAY



for Counter
or Wall



See your jobber

LITTELFUSE Incorporated

4785 N. RAVENSWOOD AVE.
CHICAGO 40, U.S.A.

Genuine SERVICE INDIANAPOLIS *"Measurably Better"* SPRINGS

SERVICE SPRING COMPANY
INDIANAPOLIS 6, INDIANA



MAREMONT HAS WHAT IT TAKES

MUFFLERS—TAILPIPS
ALLOY STEEL SPRINGS

MAREMONT AUTOMOTIVE
PRODUCTS, INC.

So. Ashland at 16th St.
Chicago 8, Illinois

Personals . . .

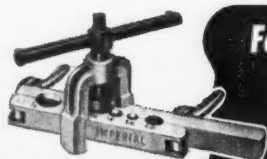
Harley A. Gardner has been appointed treasurer of the Willard Storage Battery Company, replacing I. K. Schnaitter, who resigned as treasurer and assistant secretary.

Stephen I. Johnson was elected executive vice president of the Hastings Manufacturing Company at the recent annual election of officers, held at the company office in Hastings, Michigan.

G. M. Salzman has been promoted to executive vice president of Monmouth Products Company, Cleveland, Ohio, it was announced recently. Other promotions in this company are Raymond Z. Oswald, to vice president in charge of sales, and G. P. Rouge, to treasurer. Rouge will continue to act in his previous capacity of controller.

George W. Browne, 69, who was the founder and the first president of NADA and the Wisconsin Automobile Trade Assn., passed away at his home in Milwaukee, Wis., of a heart attack on May 16. Browne had been an automobile dealer in Wisconsin since 1906.

The Picard Advertising Agency, of New York City, recently celebrated its twenty-fifth anniversary. Among Picard's original clients in 1924 were E. A. Laboratories, Inc., Brooklyn, N. Y., and Yankee Metal Products Corp., of Norwalk, Conn.



For Faster
Better
Easier
IMPERIAL Tube Flaring

Flaring Tool with quick slip-on yoke
A favorite with service men! Makes proper 45° flares on copper tubing for tight SAE flare joints.

No. 193-F flares 3/16", 1/4", 5/16",
3/8", 7/16", 1/2" O.D. Tubing.
Order From Your Jobber.

THE IMPERIAL BRASS MFG. CO., Chicago 7, Illinois

When in DETROIT

Whether on business or pleasure, make this "Goodwill Hotel" your headquarters. Located right in the center of everything . . . a block east of Woodward Avenue on Elizabeth Street, overlooking Grand Circus Park, Hotel Wolverine is accessible to all sections of the city.

500 rooms . . . each with tub and shower. Good food. Ample parking space; garage service also available.

Home of THE TROPICS . . . most unusual night spot in Detroit. Luxurious South Seas atmosphere.

**HOTEL
WOLVERINE**
"The Goodwill Hotel"

RATES FROM
\$2.75 SINGLE • \$5.00 DOUBLE



ENGINEAIR TIRE PUMP

YOUR MOTOR DOES THE WORK!
Guaranteed 2 years, and to pump only cool, clean air. Pumps up to 105 lbs. into tire—90 lbs. quickly.

Over a Million Satisfied Users!
Used by Armies of Six Nations!

**Write NOW
FOR "NO RISK"
TRIAL ORDER PLAN!**

G. H. MEISER & CO.

327 EAST MARQUETTE RD., CHICAGO 37, ILLINOIS



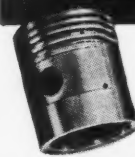
First for Comfort

BOSTROM

**HYDRAULIC
TRUCK SEAT**

BOSTROM MFG. CO. MILWAUKEE, WIS.

ALLOY PISTONS



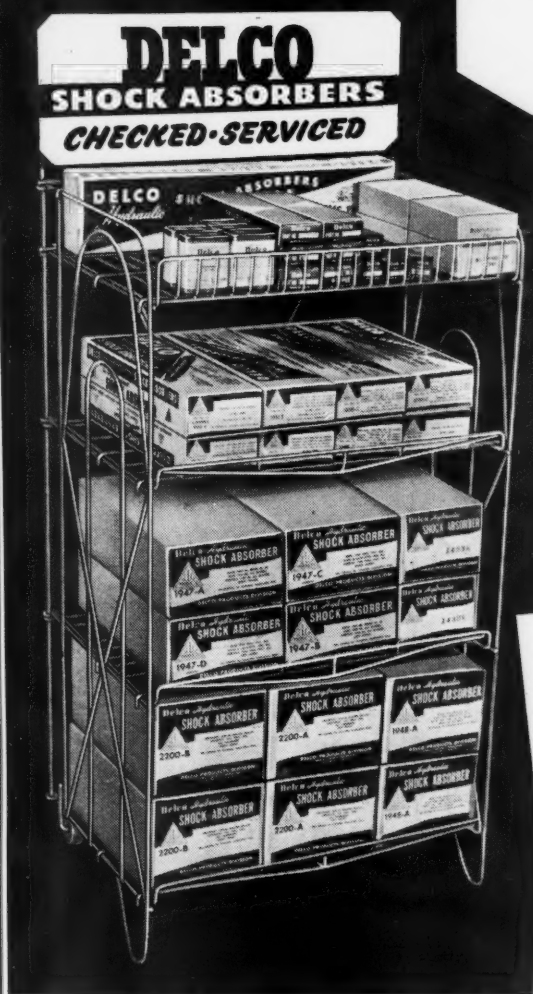
If they're
HARD TO GET
We've Got 'em!

To Fit Every Car in America

Write for Catalog
TSUNGANI PISTON CO.

625 East 11th St., Tacoma, Wash.

Let this DELCO MERCHANDISER Promote Sales and Service



It's good business to cash in on Delco's complete line of shock absorbers . . . and now Delco offers this effective merchandiser to increase your sales and your profits. It's a sturdy caster-equipped unit that both stocks and displays packaged Delcos. In it you can carry any one of three recommended fast-moving assortments for popular makes of cars . . . or you can stock it with your own selected assortment to fit your needs. With each merchandiser you receive a catalog, service manual, counter display, and wall chart. Let a Delco shock absorber merchandiser go to work for you now—call on your local United Motors distributor today.

We tell them . . . You sell them

You—and millions of motorists—just can't miss the current series of Delco two-color advertisements in *The Saturday Evening Post*. It pre-sells the car owner on the advantages of having his shock absorbers checked. He will remember the advertising all the more certainly if you install a Delco merchandiser to remind him.



**DELCO SHOCK ABSORBERS—
A UNITED MOTORS LINE**
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS



DELCO HYDRAULIC SHOCK ABSORBERS

Charlotte Southern Says...

**SPRINGY? SURE,
THE LONG-OIL RESIN BOND
DOES IT. BREAKAGE IS A
THING OF THE PAST.**



**For greater
undercoating PROFITS...**

LOOK TO...

Write for a
Davison
Representative
or authorized
distributor to give you the full story.



THE DAVISON CHEMICAL CORPORATION
BALTIMORE 3, MD.

**See your
MANLEY
DISTRIBUTOR
FOR
AUTOMOTIVE
SERVICE
EQUIPMENT**

Buy Gilbarco

For the Best in Service Station Equipment
LUBRICATION EQUIPMENT
GASOLINE PUMPS • AIR METERS
HYDRAULIC LIFTS • AIR COMPRESSORS

Gilbert & Barker Manufacturing Company
West Springfield, Mass. - Toronto, Canada

Personals . . .

C. Dewey Bookout, industrial engineer at Perfect Circle Corporation, manufacturer of piston rings, has been named Manufacturing Division Manager for the Corporation according to a recent announcement. Bookout assumes his new duties immediately.

J. P. Williams, Jr., Chairman of the Board of Directors of the Koppers Company, Inc., Pittsburgh, Pa., has recently retired from the active management of the company. He will continue in his capacity of Chairman of the Board, and will serve in an advisory capacity on special problems.

Edward M. Sheehan, twenty-fourth President of National Standard Parts Association, and for many years an active committeeman, director and officer of the association, passed away recently at Pittsburgh, Pa.

Daniel J. Hartnett, International Booster Club Vice President, has been appointed Western representative of Motor and Equipment Wholesalers Association.

Wayne L. Lawrence has been appointed as Coordinator of Sales for all divisions of the C. K. Turk Corporation, Chicago, Ill., and South Bend, Indiana.



**FILL THAT JOB WITH A
C.T.I. TRAINED MAN!**

Solve your man-power shortage by employing well-trained, dependable young men who have been trained by Commercial Trades Institute. Our graduates have completed an intensive course in Automotive Mechanics or Body & Fender Rebuilding. Their training has been practical—in well-equipped shops under expert supervision. They've learned to do excellent work. To enable you to evaluate the efficiency of C.T.I. training, we'll be glad to send you an outline of the course. You'll find the subject matter extensive, complete, thorough. We probably have men who hail from your vicinity, but most of our graduates will travel anywhere for a good opportunity. We cordially invite employers to write us for detailed information on available men. (No employment fees). Address:

**Placement Manager, Dept. P102-7
COMMERCIAL TRADES INSTITUTE
1400 W. Greenleaf Ave., Chicago 26, Ill.**

THE ANDREWS LINE . . .

Your Best Electrical Connection

CUSTOMER SATISFACTION SINCE 1921

Andrews
MANUFACTURING CO
ST. LOUIS, MO.

Exide

The dependable battery that
millions of car owners want.

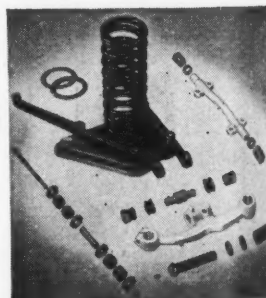
**THE ELECTRIC STORAGE BATTERY
COMPANY, Philadelphia 32**

Exide Batteries of Canada, Limited, Toronto

WHEN IT'S AN EXIDE...YOU START

**MOOG
COIL
ACTION
PARTS**

for
**SPRING
SUSPENSION
SERVICE**



MOOG INDUSTRIES, INC., St. Louis, Mo.

Designed Especially for
**AUTO & AVIATION
SERVICE Fields . . .**

- ★ Specialized and General-Purpose Cleaning Compounds for Every Requirement
- ★ Liquid Paint Mask & Point Strippers
- ★ Degreasing Machines & Safety Solvents

Write for full details!



DETREX
DETROIT 32, MICHIGAN

THE EASIEST TO USE MONEY-
MAKING TOOL IN YOUR SHOP!



Thor

SWIVEL
ACTION

BODY and FENDER HAMMER

Even inexperienced operators do perfect work the first time with the new Thor Body and Fender Hammer—Ball Swivel Action on both upper and lower dollies! Push Button "On-Off" Air Control leaves both hands free! Speed and power easily regulated from dead stop to full force! Sensitive ratchet control, positive ratchet lock, rigid yoke locking device—features like these make the Thor Hammer the easiest to use money-making tool in your shop!

3
MODERN
KITS

Send for Thor Body and Fender Hammer Circular No. 1085 with complete listings and illustrations of equipment for reconditioning all turret tops, hoods, bodies, doors and fenders.

INDEPENDENT PNEUMATIC TOOL COMPANY

Aurora, Illinois

Export Division: 330 West 42nd St., New York 18, N. Y.

Birmingham Boston Buffalo Chicago Cincinnati Cleveland Denver Detroit Houston Los Angeles Milwaukee New York
Philadelphia Pittsburgh St. Louis St. Paul Salt Lake City Seattle San Francisco Toronto, Canada Sao Paulo, Brazil London, England

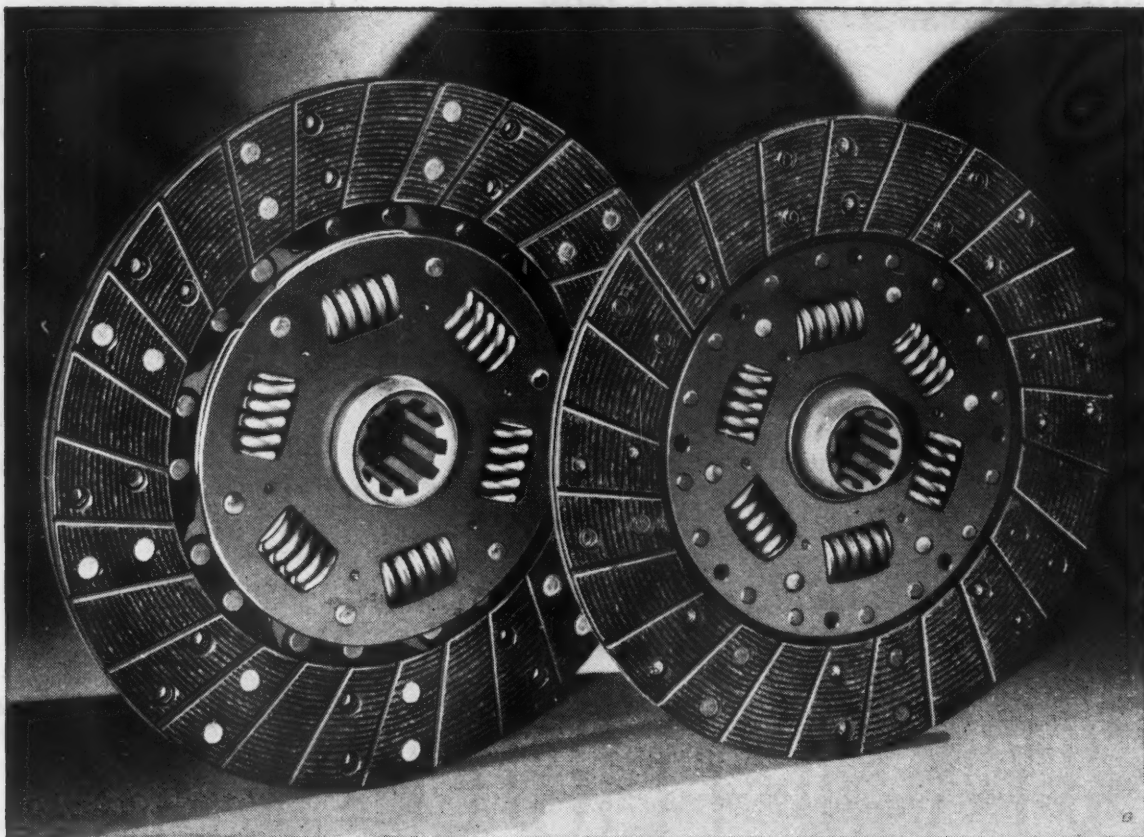
Thor

PORTABLE POWER

TOOLS

COMPLETE PNEUMATIC AND ELECTRIC TOOL EQUIPMENT FOR THE AUTOMOTIVE SHOP

MOTOR AGE, July, 1949



*You can stake
your reputation
on PERFECTION!*

Turn Chatter Into Praise and Profits with PERFECTION Clutch Plates

You can make more satisfied customers—and enjoy greater profits—by standardizing on Perfection "CF" Clutch Plates. These quality products have these outstanding features:

- (1) Patented formed and riveted cushioned springs eliminate chatter and grab.
- (2) Balanced coil spring center absorbs torsional vibration and transmission rattle.
- (3) Full-floating hub won't pull out.
- (4) Plate is completed with jointless and endless cord-woven facing, with standard BLMA drilling.

*For details—consult your Perfection jobber, or write us.

PERFECTION GEAR COMPANY • HARVEY, ILLINOIS



Perfection Products Include: Silent Timing Gears • Metal Timing Gears • Silent Timing Chains, Transmission Gears and Parts • Differential Ring Gears and Pinions • Differential Cases and Parts • Fly Wheel Gears • Cylinder Heads • Clutch Cover Assembly Parts • Clutch Plates • Pressure Plates • Clutch Forks and Parts • Clutch Rebuilders

SELF-CONTROL STARTS HERE



and to Restore
CAR PERFORMANCE

OIL-CONTROL STARTS HERE

TO STOP OIL-PUMPING, REPLACE WORN CONNECTING ROD BEARINGS

On the fairway or on the highway, performance is good only when the job is done *right!*

When the complaint is an oil-pumping engine, always check the connecting rod and crankshaft bearings. Oil-pumping *starts* with worn bearings, no longer doing their job of metering the oil for engine lubrication. The best of piston rings can't stop oil-pumping

caused by excessively worn bearings. Give new rings a chance to do their own job! Check the engine bearings... when worn, replace with Genuine Federal-Mogul Oil-Control Bearings. They restore fine engine performance!

FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)

DETROIT 13, MICHIGAN



**CONTROL OIL-PUMPING
WHERE IT STARTS—WITH**

FEDERAL-MOGUL
BEARINGS

OIL CONTROL



*The Complete Line—
More than 7000 Items:*

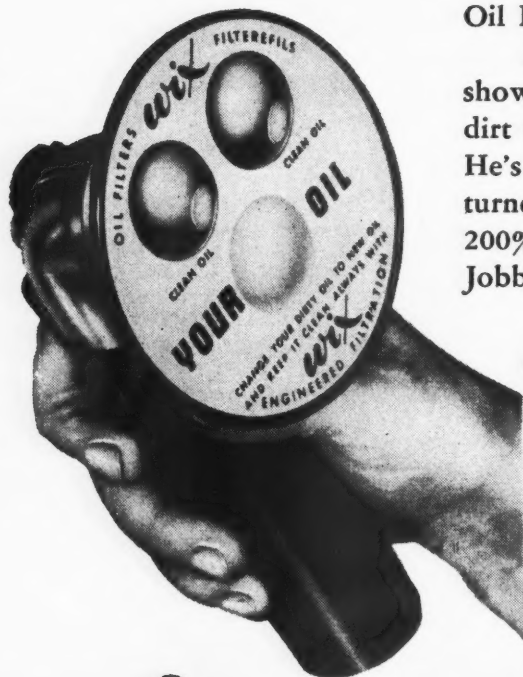
Engine Bearings (Main, Connecting Rod and Camshaft) • Bushings • Connecting Rod Exchange • Reconditioned Connecting Rods • Rebabbed Connecting Rods • Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Bearing Metals • Laminated Shims • Solders



FOR THREE SALES CHANCES AT EVERY OIL CHECK!

WIX Engineered Selling actually gives you three sales opportunities every time you lift a dipstick! Sell a WIX Filterefil—a WIX Oil Filter—or an oil change—in one, smooth WIX operation!

At every oil check, use the eye-opening WIX Dirtector to show your customer the *condition* of his motor oil. Let him *see* the dirt that makes him need WIX Filter Service or an oil change. He's sold, and sold FAST! Already, Dealers by the thousands have turned to WIX for the tools of Engineered Selling. Reports of 200% and 300% sales increases are common! Check with your WIX Jobber NOW... and start checking in with those big WIX profits!



HERE ARE YOUR *wix* SALES TOOLS

WIX DIRTECTOR—A handy, car-side oil analyzer!

WIX CABINET MERCHANDISER—Your handsome, silent salesman! It holds Filterefil Stock for 90% of all cars and a dozen cans of oil—PLUS the following:

WIX FILTER IDENTIFICATION CHART—Illustrates principal car & truck filters just as you'll see them! Identifies filter and refers you instantly to the proper WIX Refill for it.

CATALOG

PRICE SHEET

ADVERTISING FOLDERS



wix

TRADE MARK REG.

FILTERS AND FILTEREFILS

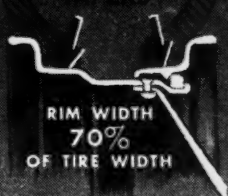
WIX ACCESSORIES CORP'N • GASTONIA • N. C.

CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 11 Wabash Ave., Toronto 3, Ont.

KELSEY-HAYES

The Truck Wheel with the Improved
3-Piece Wide-Base Rim for...

GREATER SAFETY-ECONOMY!



SAFER and EASIER
TIRE MOUNTING

SAFER and EASIER
TUBE INSERTION

SAFER and EASIER
WHEEL ASSEMBLY

SAFER and EASIER
RING LOCKING



ALSO Increases Tire Mileage 20% to 50%
and Cuts Installation and Servicing Costs!

This Kelsey-Hayes Truck Wheel with the improved 3-piece wide-base rim is the most modern of its type ever offered! In addition to the new convenience in mounting and dismounting tires, it provides operators of trucks and fleets with the many important advantages of the wide-base mounting and the five degree angle in the bead seats for longest tire life

This Kelsey-Hayes Truck Wheel is especially necessary where the brunt of extra hard service demands the utmost tire conservation for greater mileage. This Kelsey-Hayes wheel assures better load distribution, greater tire stability, air volume and road contact, yet reduces tire running temperature and pressure to help prevent blowouts. See your nearest K-H distributor today.

Available in all Popular Sizes for
Leading Makes of Trucks



... ASSURES PROVEN PRODUCTS AT ...

KELSEY-HAYES WHEEL COMPANY
DETROIT 32, MICHIGAN



Wheels—Hub and Drum Assemblies—Brakes—"Vacdraulic" Brake Power Units—for Passenger Cars, Trucks,
Buses—made by Kelsey-Hayes' 4 Michigan Plants and Windsor-Canada Plant • "Magdraulic" Electric Brakes—
"Lathan" Vacuum Power Brake Equipment for Tractor-Trailers—made by Kelsey-Hayes' South San Francisco-Lathan Plant.
Wheels—Hubs—Axles—Parts for Farm Implements—made by Kelsey-Hayes' French & Hecht Plant at Davenport, Iowa.

DON'T LET YOUR CUSTOMERS GET CAUGHT WITH THEIR TIRES **DOWN**



Your customers depend on you for more than equipment and service. They depend on your judgment of the quality and workmanship in the parts you use or sell.

That's why, whenever you buy tire valve equipment it's best to say "Schrader." Schrader caps, cores, gauges, etc. have what it takes to keep your customers' tires plump and your customers happy. Besides it's easier to buy Schrader because Schrader makes everything you need.

Then there's "customer acceptance"—and the word for that is Schrader because Schrader advertising, appearing regularly year after year, tells your customers the story of Schrader quality... helps make Schrader equipment easier to sell. So for ease of buying and ease of selling—it's Schrader *all the way*.

GAUGES

Most motorists know the reliability of Schrader gauges. They stand up longer.

SPARK-PLUG TIRE PUMPS

Every motorist, truck or tractor owner needs one. Demonstrate it—you'll sell it.

VALVE CORES

Order Schrader in the handy 100-packages (20 boxes of five) for quick resale—and for your own use with each tube repair, buy them in the 100-bulk cartons.

BUY CAPS THE SAME WAY.

BUY SCHRADER SERVICE GAUGES FOR YOUR OWN USE, and be sure you're always right when you check a tire pressure.

DON'T SELL LESS THAN THE BEST—
DON'T USE LESS THAN THE BEST—

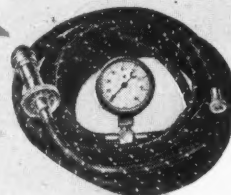
Schrader
PRODUCTS
CONTROL THE AIR

BUY SCHRADER!
ONE SOURCE... ONE RESPONSIBILITY

Valves • Cores • Caps • Gauges • Vulcanizers • Air Chucks • Valve Converters



Eye catching display of No. 5050 gauges gives that "buy it now" nudge to customers. Show 'em and sell 'em at \$1.60 per gauge.



Another fast seller. Put them up front and sell Spark Plug Tire Pumps for \$3.00

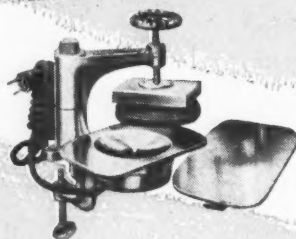


Handy boxes of 5 retail fast for 33¢ when you let the people see them.

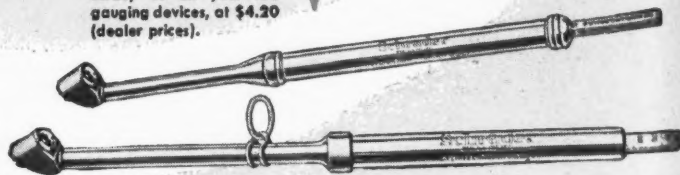


For repair work buy the bulk cartons of 100 caps or cores at real savings.

Better valve replacements and tube repairs are sure with a Schrader No. 8601 electric vulcanizer at \$17.00 (dealer price).



7188 BH for everyday use at \$3.35. 8106 B Master gauge to gauge the accuracy of all your tire gauging devices, at \$4.20 (dealer prices).



A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, BROOKLYN 17, NEW YORK

World's Largest Manufacturer of Tire Valves, Gauges and Accessories

Announcing the NEW, REVOLUTIONARY Sun Generator & Regulator Tester

Featuring Startling Innovations that **SPEED UP** and **SIMPLIFY** Operations, making it possible for EVERY SERVICE SHOP to get into **BIG PROFIT GENERATOR & REGULATOR TEST and REPAIR WORK!**

THESE ANSWERS POINT THE WAY TO GREATER PROFITS FOR YOU...

Why can Tests be made with Greater Accuracy on this New SUN Tester?

There are many reasons! To name a few...

- Adequate power and complete control
- Complicated wiring hook-ups are eliminated
- Regulators are mounted in actual vehicle position
- Correct regulator operating temperature
- Includes a master generator for use in testing all regulators.
- Regulators tested to exact manufacturers' specifications
- Proper polarity correction is provided
- No jumper wires or leads needed
- Manufacturers' specifications are shown at a glance

How does the New Generator & Regulator Tester Simplify and Speed-Up Testing?

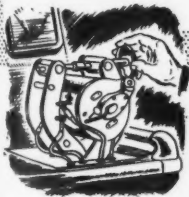
Here are some of the most important time-saving features:

- Generator mounting time is reduced to a matter of seconds
- All makes of regulators are quickly mounted
- Minor misalignment in generator shaft is automatically corrected
- Instant speed control is obtained at the front panel
- Regulator heating time is cut by $\frac{2}{3}$ or more
- Correct circuits for all tests automatically provided
- Load and resistance instantly selected

Why does the SUN Tester Cut Maintenance Costs and Last Longer?

Because the new SUN Generator & Regulator Tester is designed and engineered with such exclusive advantages as these:

- Motor is protected against overload and burn-outs
- Arcing and burning of switches is prevented
- Noise and vibration eliminated
- Motor and growler protected against damage
- Battery is isolated in separate compartment
- Minimum wiring hook-ups and changes



The SUN Self-Centering, Self-Closing Generator Mount reduces mounting time to a matter of seconds.



A new, quick-heating, auto-timed oven brings regulators up to proper heat $\frac{1}{3}$ usual time.

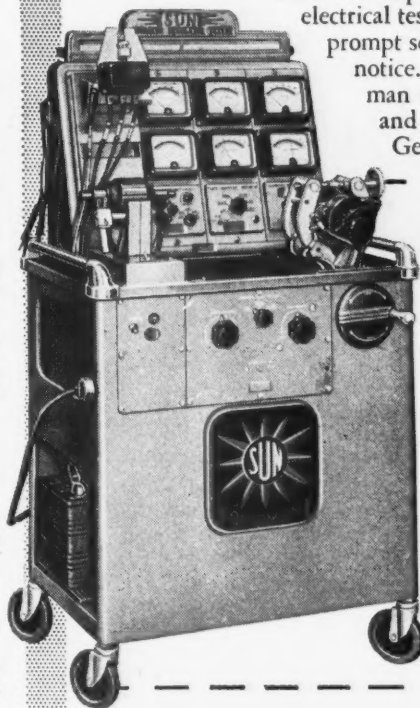
R-3309



A NEW SERVICE means NEW PROFITS! This SUN-engineered new equipment enables you to keep profitable test and repair work *in your own shop!* Now, with the new SUN Generator & Regulator Tester, you can make *complete, accurate* tests and repairs on generators and regulators for all passenger cars and light trucks. You can give your customers better, faster service and retain the profits on work that you formerly had to job out.

ESPECIALLY DESIGNED FOR SERVICE SHOP USE! The new SUN Generator & Regulator Tester simplifies a formerly complex procedure so that now, any mechanic can quickly and easily learn to do expert testing and repair work. SUN's 400-Man Field Organization is at your service to instruct your mechanics without cost in the proper operation of your new SUN Generator & Regulator Tester. What's more, your local SUN

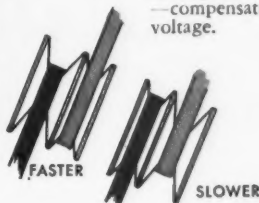
Man will help you set up an efficient and profit-making electrical test and repair department... he'll render prompt service at any time, on less than 24-hours' notice. Your SUN Man is a mighty good man to know! Write TODAY for his name and complete data sheets on the new SUN Generator & Regulator Tester.



ALL-NEW FEATURES INCLUDE THESE IMPORTANT ADVANCEMENTS!

- NEW..** Constant-speed motor and Variable-Speed Drive combination!
- NEW..** Self-centering, quick-closing generator mount unit!
- NEW..** A master generator is included that handles all standard regulators!
- NEW..** Speedy internal-external automatically-timed regulator heater!
- NEW..** Completely automatic circuit selector switches!

SUN'S VARIABLE-SPEED DRIVE ASSURES MAXIMUM POWER AT ALL GENERATOR SPEEDS! The SUN Drive eliminates speed fluctuations as load is varied. The maximum power output of the constant speed motor is available at all speeds with new application of the quiet, sturdy Variable-Speed drive. No belt or pulley changes are required — compensation is made for fluctuations in power line voltage.



Sun ELECTRIC CORPORATION
6353 AVONDALE AVENUE CHICAGO 31, ILLINOIS

"GOSH-GRIZZLY
has a product for
every brake job!"



Sure enough, *whatever* you need for
brake service—brake linings, brake fluid, and hydraulic brake parts—
you can get it from Grizzly! All *fine* products, the kind that keep customers
satisfied and make *your* work quicker and easier. And don't forget the continuous selling
help Grizzly brings you in the way of *national* advertising and *practical* merchandising aids.

Check your brake service needs *today*
with your Grizzly Distributor!
Grizzly Manufacturing Company, Paulding, Ohio.

Bear in Mind  ... ask for

GRIZZLY
REG. U.S. PAT. OFF.
FINE QUALITY PRODUCTS FOR
BRAKE SERVICE



BRAKE LININGS

Famous for over 30 years for smooth
quiet, soft pedal stops and safe, dependable
performance. Synaro Sets, segments, rolls
and "Softibond" segments.

ALUMINUM BACKED HEAVY DUTY BLOCKS

Aluminum sheets bonded to
shoe side increase block
strength and provide uniform
contact, more effective
heat dissipation and greater
holding power.



THE BEST YOU CAN SELL!



BRAKE FLUID

Meets or excels all SAE
Standards. Chemically
stable. Anti-foam. Mod-
erate duty type for
range of 300° to -80°.
Heavy duty type, 325°
to -60°.

BRAKE PARTS

Finest materials—
precision workmanship.
Hoses, Stoplite
Switches,
Wheel and
Master Cylinder
Repair Kits.



Super Product!



Compare Super Pyro with any other anti-freeze in its price range!

1. The anti-freeze protection of Super Pyro is 33 1/3% more effective than that of most other types!
2. Super Pyro protects not just one or two, but all 7 metals in the cooling system of a car's engine!
3. Super Pyro—due to an exclusive U.S.I. ingredient—is longer-lasting!
4. Super Pyro has a new freedom from odor!

Super-Safe!

That's you—if you order your supply of this Super Product now! Yes, there will be more Super Pyro—but still not enough to satisfy the demand for this super-popular anti-freeze. So play it Super-Safe—order your Super Pyro now! CALL YOUR JOBBER TODAY!



Super Power!



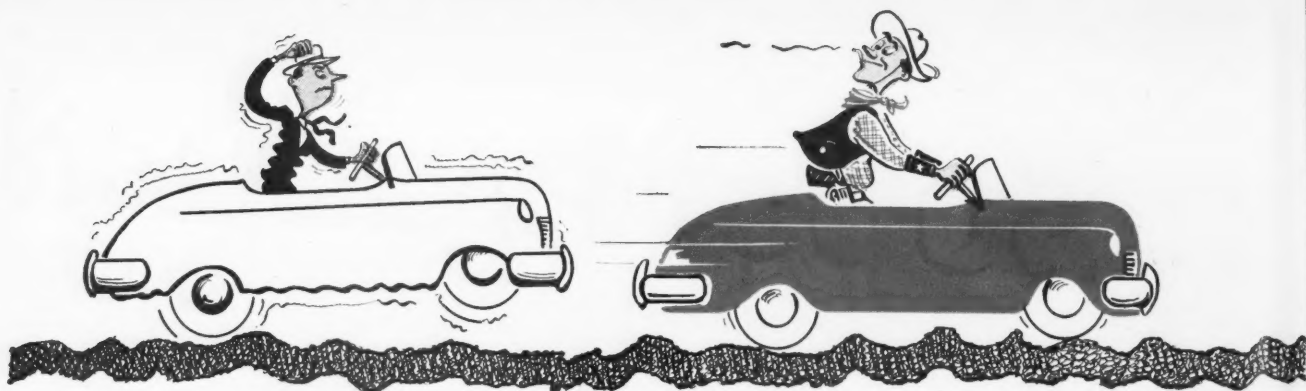
This Super Product deserves a super promotion . . . and it's all set. Super posters will sell Super Pyro to over 41,300,000 people. Super color ads in Look, Collier's and the Saturday Evening Post will sell Super Pyro to over 130,446,000 readers! Super newspaper ads every week will sell Super Pyro 149,908,712 times! That's Super Power! And that's what's going to send people right into your station for Super-Safe Super Pyro!

Super Pyro

The longer-lasting anti-freeze!



U. S. INDUSTRIAL CHEMICALS, INC.



HAVE YOU TRIED A "HUSKY" RIDE?

The HOUDAILLE* "HUSKY"

The only heavy-duty, direct-action shock absorber which is interchangeable with standard-size units and fits present production installations without special drilling or fittings and without sacrifice in collapsed or extended length. Priced right for volume sales.

● Ride in a car equipped with Houdaille Huskies. You'll quickly see why these new Houdaille *Heavy-Duty Shock Absorbers* offer you the biggest boost to shock absorber sales you've ever had.

Huskies sell themselves on demonstration with the almost unbelievable easy ride they give. Their huskier parts and increase fluid capacity mean low pressure operation for added comfort and longer life under normal conditions. Where extra control is needed, the Husky has the strength and capacity to provide it without undue strain or wear.

Houdaille Huskies are the best replacements you can sell for worn-out shocks. New car owners are ripe prospects, too, for their extra smoothness and extra life. Commercial fleets, taxicabs, ambulances, deliveries and other service vehicles will all swell your sales on this most profitable of all shock absorber lines.

Start building husky profits now by featuring Houdaille Huskies. Call your nearest source of supply, or write us today.

* Say
"Hoo-dye"

HOUDAILLE-HERSHEY CORPORATION
HOUD ENGINEERING DIVISION
BUFFALO 11, NEW YORK

America's Pioneer Builder of Hydraulic Shock Absorbers



The complete Houdaille line of Brand New—NOT Rebuilt Rotary and Direct-Action Shock Absorbers is described with applications, part numbers and prices in the new Houdaille catalog. Ask your distributor or write for copy.



*A new day in
Oil Changing!*

THE ALLEN "OVER-THE-FENDER" 3 MINUTE SERVICE

YOUR CUSTOMERS WILL LIKE IT! This is the day motorists have been waiting for! At last they can get an oil change in the time it takes to fill the gas tank... no waiting for pits, lifts and service men to be free... no need to even get out of the car. And they actually see the dirty oil come out! Car owners will soon consider other methods "out of date."

YOU WILL LIKE IT! Because it means more profits for you! You can make more oil changes in a day... you save 20 minutes labor per change... sell more flushing jobs, too. Lifts, pits, work areas and men are free for other services. Don't lose business because the customer "can't wait"... change oil the modern KWIK-SERV way and get *more* customers!

ALLEN KWIK-SERV FEATURES—In three minutes the KWIK-SERV completely and thoroughly removes old oil and sludge, and puts fresh oil in! VIZ-U-LATOR SIGHT GLASS lets customer see old oil as it is removed. AUTO-SIGNAL LIGHTS indicate completion of each pumping stage. SNAP-ON NOZZLES; one serves 80% of jobs. OIL CAPACITY—Fresh oil tank holds 2 gallons; scavenger tank 15 gallons. DE LUXE CABINET—Gleaming white baked enamel with chrome trim; 8" roller bearing wheels.



EXCLUSIVE 3-WAY SELECTOR VALVE

Only one control is required... an Allen innovation that makes operation simple and sure. 1. Turn control to **DRAIN**... OUT comes all old oil! 2. Turn control to **FILL**... IN goes fresh oil! 3. Turn control to **EMPTY**... to pump waste oil from Scavenger Tank!

CHANGE TO KWIK-SERV CHANGING...WRITE TODAY FOR DETAILS

ALLEN

ELECTRIC and EQUIPMENT COMPANY

2345 NORTH PITCHER STREET

KALAMAZOO, MICHIGAN



Motor
Testers



Synchrographs



Fast
Chargers



Welding
Equipment



Electrical
Laboratories

ALLEN ELECTRIC & EQUIPMENT CO.
2345 No. Pitcher St., Kalamazoo, Mich.

Please send us complete information on the
Allen KWIK-SERV Automatic Oil Changer.

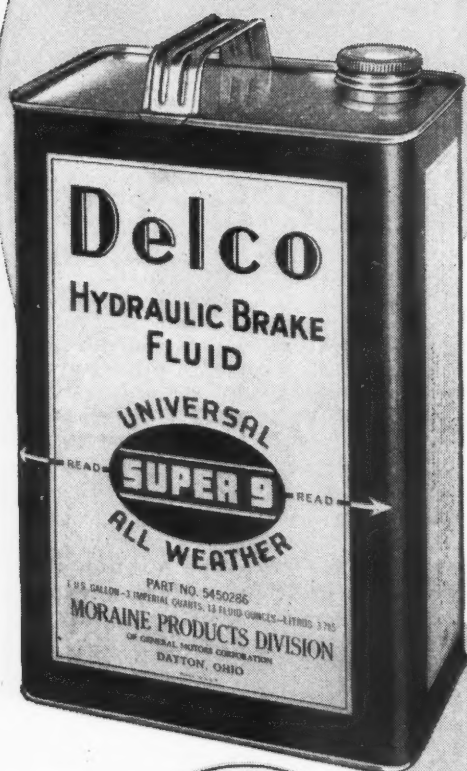
Name _____
Address _____
City _____ State _____

**HIGHWAY SAFETY
BEGINS INDOORS**

You Promote Safety with Every Sale...

DELCO SUPER 9

HYDRAULIC BRAKE FLUID



DELCO BRAKE—A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS

MORaine PRODUCTS DIVISION OF GENERAL MOTORS

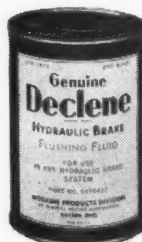
Delco

SUPER 9 AND SUPER 11 BRAKE FLUID • DECLINE • BRAKE PARTS
STANDARD FOR EQUIPMENT • THE STANDARD FOR REPLACEMENT

Highway safety begins indoors . . . in service stations and repair shops . . . with personnel alert to the best interests of their customers. And one of the most important safety measures is to sell the customer a brake-system refill of Delco Super 9.

Delco Super 9 brake fluid contributes greatly to safe operation, because its special formula assures positive and lasting performance. It is effective at any temperature from 50 below zero to 300 degrees above—it is non-gumming—it is harmless to metal and rubber.

Both you and your customer profit from your sale of Delco Super 9. Recommend it freely and frequently.



ANOTHER PROFIT SOURCE
Declene Flushing Fluid cleans out all remnants of old, deteriorated, or inferior brake fluid, leaves the hydraulic system free of gum and dirt. Make its use a regular part of every refill job.

Somebody will go to town in city "X"!



City "X" is ready and waiting for a Packard dealer! And here is what it offers him:

A prosperous, growing market: The population, now 25,000, has *trebled* since 1942. (Trading area population: 70,000.) Stable, diversified industries range from knitting mills to marble quarries. What's more, City "X" is the business heart of a rich agricultural area. Effective buying income is estimated at 18 million dollars.

A ready-made group of customers: Scores of loyal Packard owners in City "X," are immediate customers for service . . . and are pre-sold prospects for new Packard cars.

Pleasant family living: City "X" is a pleasant, historic city with a suburban atmosphere—just 17 miles from a celebrated Southern state capital. It's in the center of a fast-growing recreational area.

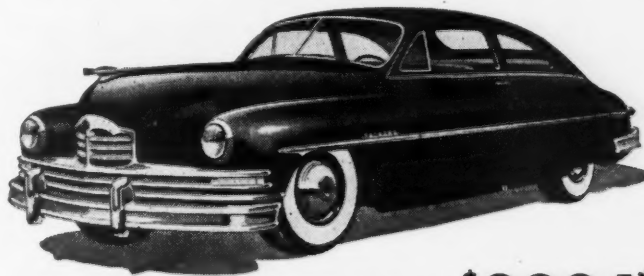
.

City "X" is one of a select group of cities on the new Packard Golden Opportunity list. They're going fast—so act quickly!

- Sell the new *Golden Anniversary* Packard line—three series, 14 individual models, at *new lower prices!*
- Qualify for the industry's first *three-year dealer contract!*

- Share in the future of America's oldest exclusive fine car builder—a Company which today is in the *best production and sales position of its entire history!*

Wire or telephone direct to Karl M. Greiner, General Sales Manager, Packard Motor Car Company, 1584 East Grand Blvd., Detroit 32, Mich. (All inquiries are confidential.)

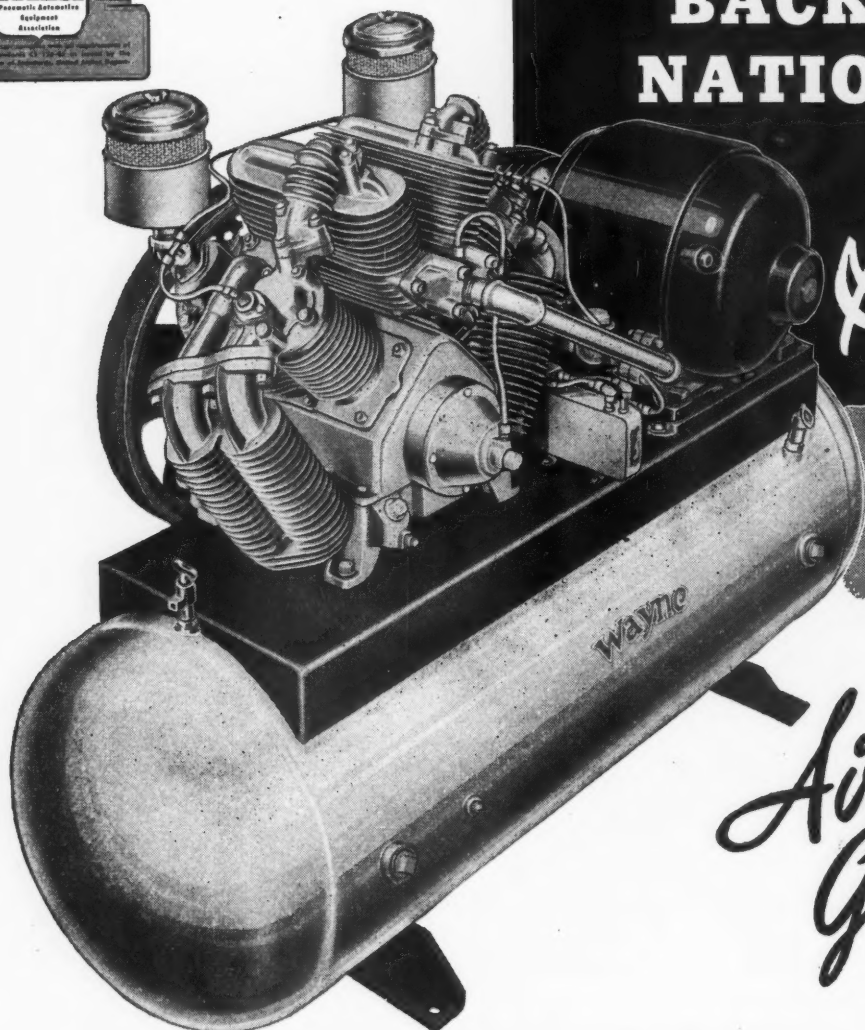


NEW LOWER PACKARD PRICES begin at **\$2224***

**for the 135-HP Packard Eight Club Sedan—delivered in Detroit; state and local taxes, if any, and white sidewalls (\$21), extra.*

Packard

ASK THE MAN WHO OWNS ONE



**BACKED BY
NATIONWIDE**

Service!

**WAYNE
PACKAGED**
Units of Power

*Air Needs
Growing?*

RUGGED POWER FOR INCREASED LOAD

PROFITABLE APPLICATIONS of compressed air in the garage and service station are increasing almost daily. As a result, most air compressors are overloaded. If your present air compressor runs too frequently, you need a larger unit. It will pay you to replace it now with a Wayne. These "packaged units of power" are available in many sizes and types ranging from $\frac{1}{3}$ H.P. to 10 H.P. They are ruggedly built for long life and low maintenance expense. Modern design assures greater air delivery at lower cost for current. Use the coupon now!



WRITE FOR CATALOG TODAY

**THE WAYNE PUMP COMPANY, FORT WAYNE 4, INDIANA
504 TECUMSEH STREET**

Please send us without obligation ☐ Catalog of Wayne Air Compressors; ☐ Folder on Wayne Single- or Two-Post Hoists; ☐ Hose Reel Bulletin; ☐ Folder on Car Washers; ☐ Bulletin on Air Scales.

NAME _____

ADDRESS _____

CITY _____

STATE _____



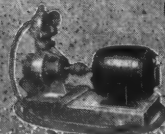
WAYNE LIFTS



HOSE
REELS



AIR
SCALES



CAR WASHERS

Get in the SWIM!



THE BEST EQUIPPED SHOP
GETS THE PROFITABLE BUSINESS

Now is the time to take the plunge. There's a tremendous volume of fall and winter business coming up. With new, modern equipment you can greatly increase your ability to handle it without increasing overhead in space or pay-roll.

Modern equipment means better work, more customers, increased profits.

Modern equipment, bought on the Automotive Equipment Plan, requires little capital outlay, pays for itself as it works. Ask your jobber.

BUY... AND FINANCE...
THROUGH YOUR JOBBER

ONE CONTRACT... ONE COST
... INSURANCE INCLUDED



If you don't know about A E P . . ask your jobber.

COMMERCIAL CREDIT CORPORATION

A Subsidiary of

Commercial Credit Company, Baltimore • Capital and Surplus \$100,000,000

MORE THAN 300 OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

HULBERT'S

Smash-Proof

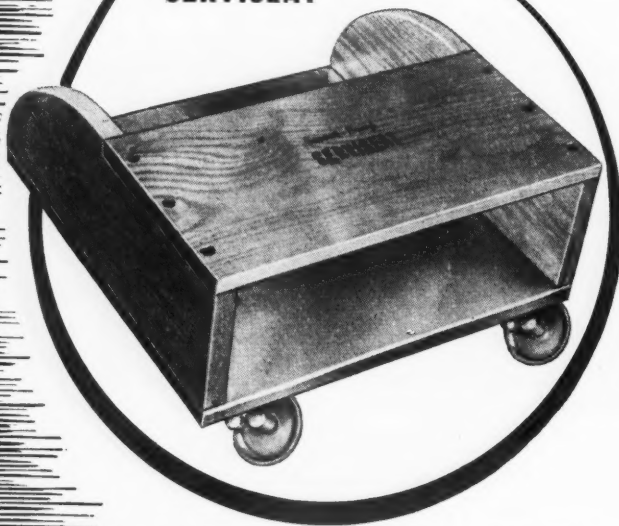
Trade Mark

DIPPSY-DOODLE CASTERS

PAT. PENDING



Smash-Proof
SERVISEAT

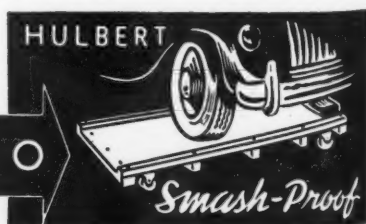


SLIDES UNDER ANY MAKE OF CAR EASILY
Keeps your most used hand tools and miscellaneous small parts where you can put your hands on 'em when working under a car. Built to take socket wrench tray. Metal covered bottom prevents soaking up grease. And of course the Serviseat rolls on Dippsy-Doodle Casters. Hulbert's Smash-Proof Serviseat is the answer to your under-the-car "where's that wrench" question. 18 inches square by 8 inches high with low "head room". Only \$6 95 delivered.

**FOR *Smash-Proof* CREEPERS
AND *Smash-Proof* SERVISEAT**

Here's the new Hulbert Smash - Proof Dippsy-Doodle Caster with a case-hardened wheel of small diameter that out wears any saucer-type caster you ever saw . . . Rolls easier and more freely on uneven floors too! With the roll-over capacity of an 8-inch wheel, Dippsy-Doodle casters put the top of your Hulbert Smash-Proof Creeper only 2 1/4 inches from the floor. Strong as the famous Hulbert 888 Smash-Proof Casters, Dippsy-Doodle Casters utilize a connecting block (Patent Pending) which permits pintle pins fully 1/8 inch larger in diameter than you'll see on any other saucer-type caster. Dippsy-Doodles weigh only one fourth as much as ordinary saucer-type casters, yet they'll stand running over because of their 50 to 100% extra strength. Adaptable to any conventional type creeper without special mounting. Used on No. 18 and No. 21 Smash-Proof Creeper, with no extra cost.

HULBERT MANUFACTURING CO. • Ashtabula, O



Keeps Engines Safe in the

DANGER ZONE

OIL CHANGE
TIME

VALVOLINE MOTOR OIL

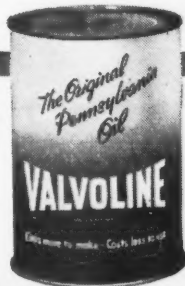
Many motor oils fail in the *Danger Zone*—that last few hundred miles before the drain period. This is when weaker oils thin out—lose their cleaning action—expose the engine to damage from heat, friction, corrosion.

The reason: Some motor oils use additives as a crutch, in an attempt to overcome natural weaknesses in the oils themselves.

VALVOLINE's protective qualities are in the oil itself—in natural, durable form that stands up under punishment. For double protection, additive is used—to guard against *outside* contamination.

Sell Your Customers FOR GOOD—with VALVOLINE's 6-Point Proof of Quality

1. Made from world's finest crude—100% Pennsylvania.
2. Selective Extraction removes the few impurities—leaves *all* the natural lubricating factors in the finished oil.
3. Cleanest type oil known. Additives protect against *outside* contamination.
4. Highest Viscosity Index—best protection against thinning at engine temperatures.
5. Passes every test with honors—in the laboratory—on trial runs—in actual use.
6. World's longest record of customer satisfaction—America's first Pennsylvania Oil.



Send For Booklet "Evaluation of Valvoline"

It tells in detail why you can win friends and build bigger, steadier profits by becoming an authorized Valvoline dealer.

100% Pennsylvania Oil

FREEDOM-VALVOLINE OIL COMPANY
Freedom, Pennsylvania



IMPROVE YOUR EMPLOYEE RELATIONS WITH THIS FIVE-STEP PROGRAM!



EVERYBODY BENEFITS!

7,500,000 workers are regularly buying an individual average of \$20 of Savings Bonds per month. These people are gaining financial security—are putting more opportunity into their futures—because at maturity every \$3 invested will pay \$4.

Business and the national economy benefit too. Savings Bond dollars are deferred purchasing power—an assurance of good business during the years to come.

Of the nation's 38,000 companies employing 100 or more people, over 20,000 firms are operating the Payroll Savings Plan—the popular system by which employees invest in U. S. Savings Bonds every pay-day. These companies report *internal benefits* from the Plan: reduced absenteeism, lower accident rate, increased production. Such results are, of course, manifestations of the sense of greater security the employees feel as their investment in Bonds grows. It naturally follows that employee-employer relations improve as well.

HOW TO GET THE MOST GOOD

Obviously each company benefits in proportion to the percentage of its employees who participate in the Plan. Nation-wide experience indicates that 50% of the employees in your company can be persuaded to participate *without high-pressure selling*. Here are five steps which have proved to be the "magic formula" for putting over the Plan. They will get results for you:

1. See that a top management man sponsors the Plan.
2. Secure the help of your employee organizations in promoting it.
3. Adequately use posters and leaflets and run stories and editorials in company publications to inform employees of the Plan's benefits to them.
4. Make a person-to-person canvass, once a year, to sign up participants.

These first four steps should win you 40-60% participation. Normal employee turnover necessitates one more step:

5. Urge each new employee, at the time he is hired, to sign up.

Check up on the Payroll Savings Plan in your company. If fewer than half of your employees are participating, you have a lot to gain by following the five-step program outlined here. All the help you need is available from your State Director, U. S. Treasury Department, Savings Bonds Division. While it's on your mind, why not call him right now? Or write the Treasury Department, Washington 25, D. C.

The Treasury Department acknowledges with appreciation the publication of this message

This is an official U. S. Treasury advertisement prepared under the auspices of the Treasury Department and the Advertising Council.



FIRST

FIRST HIGH COMPRESSION ENGINE... **FIRST** 4-WHEEL HYDRAULIC BRAKES... **FIRST** OIL FILTER... **FIRST** LIGHT WEIGHT PISTONS... **FIRST** FULL PRESSURE LUBRICATION FOR MODERATE PRICED CARS... **FIRST** MULTI-RANGE GEAR SHIFT... **FIRST** DOWN-DRAFT CARBURETOR... **FIRST** FULLY COUNTERWEIGHTED CRANKSHAFT... **FIRST** AIR CLEANER... **FIRST** RUBBER-CORED SHACKLES... **FIRST** TAPERED LEAF SPRINGS... **FIRST** FLUID DRIVE... **FIRST** SUPERFINISH... **FIRST** SAFETY GLASS... **FIRST** FULL WIDTH DOORS... **FIRST** AIR-COOLED GENERATOR... **FIRST** EXHAUST VALVE INSERTS... **FIRST** AUTOMATIC OVER-DRIVE TRANSMISSION... **FIRST** THREE-PASSENGER FRONT SEAT... **FIRST** INDEPENDENT PARKING BRAKE... **FIRST** RIDE STABILIZER

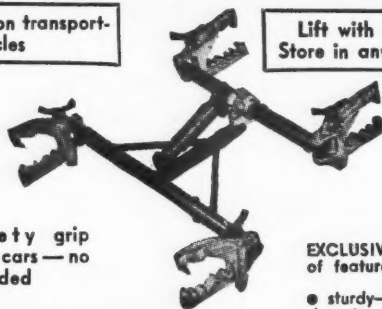
A HERITAGE OF OVER 70 IMPORTANT ENGINEERING
FIRSTS TO BACK THE DEALER WHO'S SELLING
"REAL
CAR VALUES"



The Beautiful Chrysler | *Silver Anniversary Model*

Tow 'em SAFELY . . . with ONE man . . .
without a big investment! Use the hydraulic
TOW-MASTER!

Save money on transport-
ing new vehicles



4-point safety grip
serves most cars—no
adaptors needed

Lift with one hand!
Store in any auto trunk!

**Only TOW-MASTER BUILDS
BUSINESS THIS WAY FOR YOU**

Show customers why YOU can make
a SAFE tow . . . why your Tow-
Master's exclusive features prevent
damage and strain to their cars.
They'll call YOU when service jobs
are on tap. Protect yourself, too, by
towing today's high-priced automob-
iles SAFELY. Four-jaw heavy-duty
model, only \$66.75. (Three-jaw
\$45.75.) Depend on Tow-Masters!

EXCLUSIVE combination
of features

- sturdy—but lightweight
due to aluminum cast
jaws and alloy steel tub-
ing
- no wrenches — hooks
up in less than 5 minutes
- fits new cars and prac-
tically all models now on
the road
- safety lock
- hydraulic shock ab-
sorber
- universal knuckle for
smooth action on curves
U. S. Pat. No. 2439518

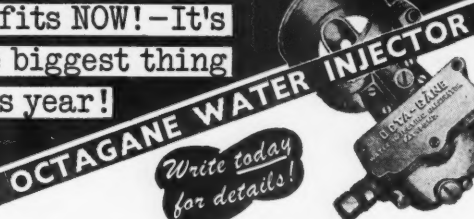
TOW-MASTER CORP.

Jobbers — Dealers — write for catalog on complete line

Dept. M 1111 N. Clark St. Chicago 10, Ill. Phone: Mohawk 4-3660

BURN WATER IN YOUR CAR!

The leading water injector
will give you more
profits NOW!—It's
the biggest thing
this year!



COMMONWEALTH CARBURETOR CORPORATION
DIV. 19-TU 1940 ADDISON STREET
BERKELEY 4, CALIFORNIA

**HULL AUTOMOBILE COMPASSES
ARE SELLING FASTER
THAN EVER**

● Right now, today—Hull Automobile Com-
passes are still growing in demand, selling
faster than ever. In the face of current
trends, it's an amazing record indeed. Isn't
this the type of surefire sales and profit item
you are looking for?

HULL MFG. CO.
P. O. Box 246-MA7, Warren, Ohio.
Send me information and prices on
the Hull Automobile Compasses:

Name _____
Check: ☐ Dealer ☐ Chain Store ☐ Jobber
Street _____
City _____ State _____



Beaconlite
illuminated
List Price \$5.95



Streamline
standard
List Price \$3.95

National "Tough Tools
for Tough Jobs"
GARAGE TOOLS

FORD VALVE LIFTERS
F-17 6-cylinder
This tool is required to remove
the valve guide locks on the
increasingly popular Ford "6".
The prong end of this tool is
forged the same as the F-16
but the handle is "L" shaped
to permit access to valve
spring.

F-16 V-8
This double-end valve spring
lifter is designed to remove
valve guide locks on all Ford
V-8 and Mercury motors. The
ends are forged from heavy
bar steel and the entire tool
is heat treated throughout.
The length is 20" overall, giv-
ing ample leverage to loosen
any guide. Cadmium finish.

Ask your automotive jobber for these tools—if out of
stock write or wire
National Machine & Tool Co. Inc.
JACKSON, MICHIGAN, U. S. A.

**HEXSET
TAPS & DIES**

Great for rethreading
in cramped quarters as
well as for cutting new
threads. Hex Dies can
be used with end wrench
or socket wrench. T-
Handle Tap Wrench has 3/4"
square opening for extension
wrenches.

Rimac #77 Hexset: 11 one-
inch hex dies, 11 taps 1/4"
to 1/2" NC and NF, also 1/8"
pipe thread, 9" Hex Die
Stock, with guides for start-
ing new threads, Tap Wrench. Polished hard wood box.
A set you'll be proud to own.

Ask your jobber or write us.

RINCK-McILWAINE, INC., 16 HUDSON ST., NEW YORK 13, N. Y.

**EVERHOT
UNIFLEX**
SEAMLESS LEAKPROOF
Bendable TAIL PIPES
BUILD MORE SALES
INCREASE PROFITS

EVERHOT PRODUCTS CO.
2001-9 W. CARROLL AVE. CHICAGO 12, ILLINOIS

Classified Advertisement

SALESMEN WANTED

Unusual opportunity for big extra earnings now to Christmas.
Sell direct to the business men you are now calling on, our famous
line of Deluxe Personalized Christmas Cards, for their own use,
as good will business builders. Commissions to \$20 or more per
sale. 75 exclusive designs with customer's name. Price \$6.90 to
\$19.90 per hundred. We also manufacture a complete line of
lower priced imprint cards. Elaborate Sample Book furnished.
Write fully in confidence. PROCESS CORP., 1954 S. Troy, Dept.
10, Chicago 23.

MOTOR AGE
The Quality Magazine
of the Automotive After-Market

SOMETHING NEW

A NEW RADIATOR FLOW-METER

For Garages and Radiator Shops



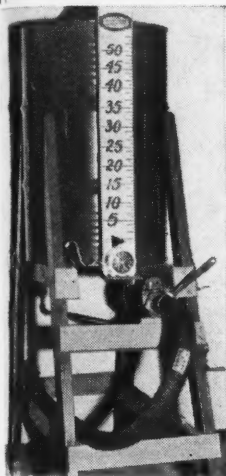
With a Detect-O-Scope, both your Customer and

"YOU, Can Actually SEE"

whether his Radiator is clogged, or not.



Detect clogged radiators quickly and accurately, either on or off the car. Protect Motor-Overhaul-Jobs. Avoid costly comebacks.



**Something You've Always Wanted
BUILD-IT-YOURSELF**

Complete Instructions and (gallons-per-minute) Flow-Test-Chart for 37 popular Makes of Car and Truck Radiators including more than 700 Models; from 1928 through 1948. Only \$5.50 (United States Money) Postpaid. Approved by Leading Manufacturers. Sold on a Money Back Guarantee. Send Check or Money Order to

**DETECT-O-SCOPE
BOX 708-B
BROWNSVILLE, TEXAS**

using an old-fashioned
parts cleaner?

CLEAN THE MODERN WAY

with



**NO BRUSHING
NO SCRAPING
NO HEATING
NO DILUTION**

Don't waste your time scrubbing metal parts when you can clean them faster and better with one dip in Bendix* Metalclene. It lifts the grime from the dirtiest parts—large or small—without brushing or wiping. And you save money, for Metalclene keeps its strength. Clean the modern Metalclene way today.

*REG. U.S. PAT. OFF.

**BENDIX PRODUCTS DIVISION of
SOUTH BEND 20, INDIANA**



Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N.Y.



Take a Tip From Me...

**NEVER USE
PETROLEUM OIL
ON RUBBER PARTS AND FITTINGS**

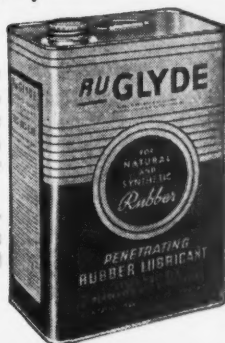
Use RuGLYDE Rubber Lubricant—It's SAFE! Will not harm the rubber, the car finish, or YOU. Penetrates and deposits a slick, wet, graphited film that stops squeaks in rubber shackles, snubber and stabilizer linkage, grommets, bearings, etc. Lasts the life of a lube job.



RuGLYDE is approved and adopted by car manufacturers and major oil companies to lubricate and preserve natural and synthetic rubber. It's non-injurious... non-poisonous... non-flammable. Apply with any oiler or spray gun.

Also makes tire changing safer, faster, easier. Available from leading jobbers in 8-oz refillable applicator can, also in one and five gallon sizes.

**AMERICAN GREASE STICK CO.
Muskegon, Mich.**



Always use **RUGLYDE RUBBER LUBRICANT**



You don't buy a solder because John Doe has switched to that brand. You buy because you want a solder which will do two things—MELT FAST and PRODUCE A TIGHT BOND. Federated Gardiner brand Acid Core Solder does these two things best. All sizes, compositions.

A PRODUCT OF

Federated METALS

division of American Smelting and Refining Company
Whiting, Indiana (Chicago)





THE *Quality* MAGAZINE

MOTOR AGE has a subscription
renewal percentage of

73.10%

—higher than any other monthly automotive publication. Its readers are keenly interested, they accept MOTOR AGE as an authority.

99%

of its subscribers are one-year subscriptions, assuring you that the subscriber is still alive, in business and still interested in MOTOR AGE.

99.31%

of its circulation goes to the branches of the automotive after-market you want most to reach—the car and truck dealers, the independent maintenance establishments, and the automotive jobbers.

The quality circulation of MOTOR AGE is truly the outstanding value of the automotive after-market.



MOTOR AGE

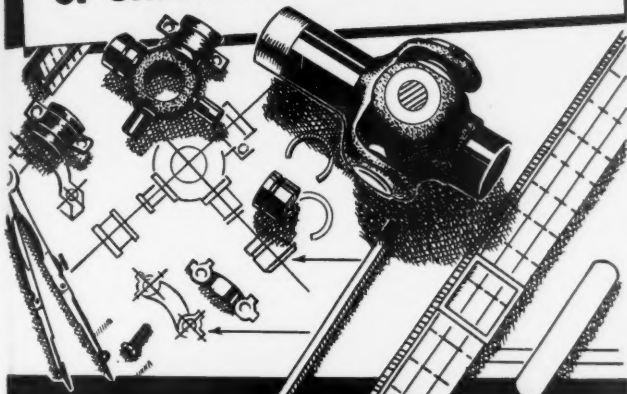
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You're sure of
ACCURACY, QUALITY
with **NEAPCO**

Over 25 years of Neapco research and development have produced an accuracy and soundness of design equal to, and in many cases, superior to the parts replaced. You can be sure Neapco replacements will fit; you know they're guaranteed to do the job.

America's Most Complete Independent Line
OF UNIVERSAL JOINTS & PARTS



NEAPCO

Neapco Products Inc.
Pottstown, Pa.

The Plant Behind AMKO Products!



Shown above is our main plant and warehouse at 556-570 W. Fulton St., Chicago, Ill., and in addition we have our Foundry and Machine Shop at Plano, Illinois.

Every AMKO PRODUCT is Carefully Engineered and Accurately Machined to Original Equipment Specifications!

Every Part, Unconditionally Guaranteed.

- King Bolt Sets
- Front End Spring Suspension Parts
- Water Pumps
- Universal Joints
- Rubber Bushings
- Spring Shackle Sets

Sold Thru Jobbers Only.

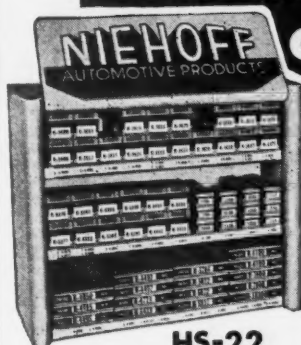
Send for our New 1949 Catalog.



AUTOMOTIVE MAN'G. CO. INC.
General Offices and Warehouse
570 W. FULTON ST. CHICAGO 6, ILL.



NOW... A Small Investment Gives You COMPLETE CAR COVERAGE



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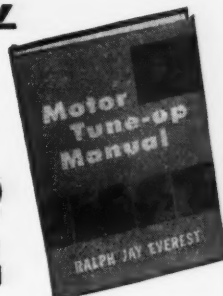
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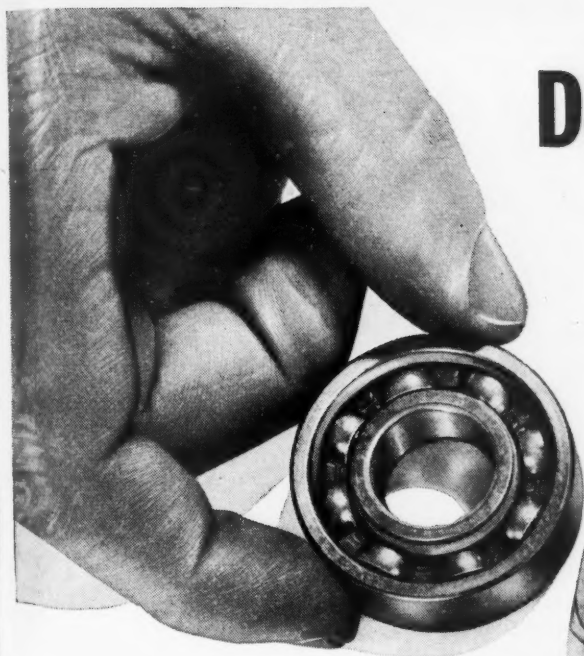
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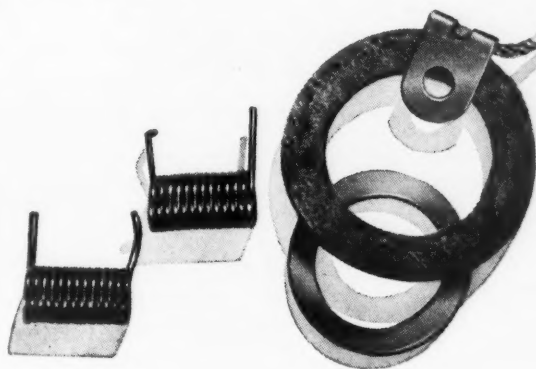
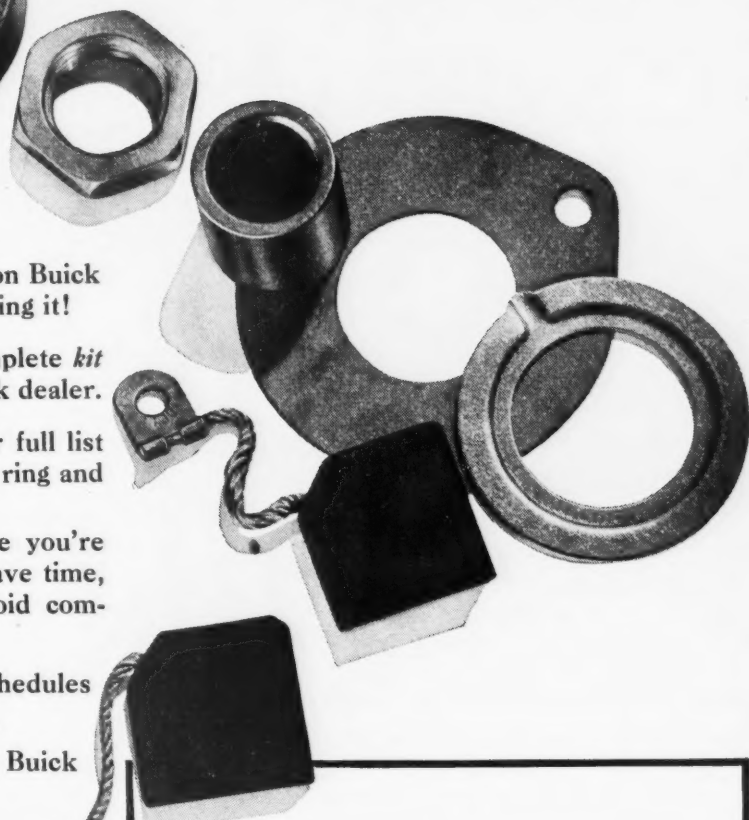
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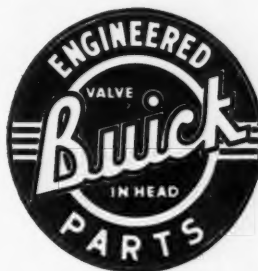
Everything fits right—works right, because you're matching new parts with new parts. You save time, you keep the customers happier, you avoid complaints and comebacks.

Best of all, the new Buick wholesale price schedules keep your costs down to competitive levels.

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with ...**



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To this type and volume of backing, add the fact that the United Motors lines are used as original equipment on the majority of the country's cars, trucks and buses, and the true VALUE of a United Motors appointment becomes apparent.

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lines are best suited to your particular operations. Or you can write directly to us.

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MORaine Engine Bearings

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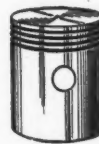
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